M
123.

A DISQUISITION OF THE STONE and GRAVEL.

(Price Three Shillings Bound.)

A

DISSERTATION

ON THE

STONE and GRAVEL;

WITH A

STRICTURES on the GOUT,

When combined with those Disorders.

BY S. PERRY, SURGEON.

The SEVENTH EDITION, improved and enlarged.

LONDON:

PRINTED BY H. BRYNELL, (No. 21,) PICCADILLY, FOR

J. BEW, Paternoster-row; J. MURRAY, Fleet-street; T. BECKET, Pall-mall;

J. SOUTHERN, St. James's Street;

and RICHARDSON, under

the Royal Exchange.

M DCC LXXXV

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M DCC LXXXV.

TO THE

ROYAL COLLEGE

OF

PHYSICIANS,

LONDON.

GENTLEMEN,

IT is uſual for authors to inſcribe their writings to ſome diſtinguiſhed perſon or ſociety, from whom they expect protection againſt the malevolent criticiſms of the world: and as I am fully perſuaded there is no authority whoſe award in this inſtance can be more deciſive than yours, I cheerfully ſubmit the merit of this little performance to your tribunal,

from a conſciouſneſs, that, without you approve, the commendation of others would have no great weight.

As the doctrine reſpecting the cauſe of the ſtone is new, I am certain it will undergo various teſts, which, in a manner, will ſubject it to cenſure or approbation, according to the prejudices of ſome or ingenuouſneſs of others: If, therefore, from a candid examination it ſhould meet with your countenance and ſupport, I ſhall have nothing to fear from the cavils of individuals.

In reſpect to that part, which treats of the diſcovery of a *cure* for the *ſtone*, I flatter myſelf the world will do me the juſtice to view it in its proper light, particularly as I have not

not dealt in conjectures, but in matters of fact.—Hitherto lithotomy has been neceſſarily called in, becauſe no real or ſafe cure of the ſtone has been pointed out. When, therefore, the following facts ſhall be known to you, it is not to be doubted but your humanity will, as far as it may come under your influence, withhold *that* operation, while a cure is likely to be had in a ſafer and eaſier way.

The advantage that may accrue to the author from your patronage, and which he has ſo flatteringly experienced, and continues to do, from ſome of your moſt reſpectable members, is ſuch, as will ſerve to diſtinguiſh him from an *empyric*, under which appellation the favourers of

any arcanum are too likely to fall, and with which persons, I am sorry to say, the world (particularly London) too much abounds.

I flatter myself it is unnecessary to say more, than to assure you, that no one has a greater veneration and respect for the profession, than,

Gentlemen,

your most obedient,

humble Servant,

S. P.

Argyll-Street,
5th April, 1785.

PRE-

PREFACE.

IN the whole liſt of diſeaſes, to which the human frame is ſubject, none is more dreadful in its conſequences to the patient than the *Stone*. It frequently attacks the moſt robuſt conſtitution, in which caſe, the inflammatory ſymptoms are carried to a higher degree, making the patient ſuffer, at once, both pain and impriſonment.

The *Stone* has long been deemed the *opprobrium medicorum*, and the *Knife* the only reſource. I ſhall not pretend to ſay what proportion have fallen who have ſought refuge in the operation; but to the honour and credit of our ſurgeons,

it muſt be allowed, that lithotomy in no country was ever more judiciouſly performed than in this: notwithſtanding which, if we conſider the number of perſons who are excluded even from that reſource, inaſmuch as the ſeaſon of the year, age, and conſtitution of the patient, muſt all conſpire to render it ſucceſsful; we ſhall ſtill find its evils but palliated in a ſmall degree: and, however proper the ſubject may be deemed for undergoing this tryal, no one will infer that his life is not in danger; and when he has ſurvived this perilous operation, unhappily for him, he is not inſured from a future attack. It ſhould alſo be obſerved, that in extracting the ſtone, nothing is more common than its giving way to, and crumbling under the forceps; in which caſe, a part may, by eluding the ſearch of the ſcoop, being a new concretion, and thereby lay him liable

liable to the ſame diſeaſe in its aggravated ſtate: as at beſt, there ſeldom fails to enſue an uneaſineſs in the part, from the contraction occaſioned by the cicatrix of the wound. But even admitting there were no obſtacles to the operation itſelf, yet, conſidering that many ſufferers are out of the reach of able ſurgeons, it is preſumed the public will favourably embrace this diſcovery, for indeed, at all events, the operation muſt ever be deemed delicate, and dangerous.

Now, although it is not poſitively aſſerted, that the ſubſequent remedy will do more than remove the diſeaſe when preſent, yet no one will object to the probability of it preventing the return of it, when he conſiders the nature of its operation. If we remove a diſeaſe, by ſeparating or deſtroying the principles on which that diſeaſe is formed, the cure will

will undoubtedly be more permanent than when the effects only are taken away: *ſublata cauſa tollitur effectus.*

Nothing is ſo difficult to be ſubdued as opinions formed on common prejudices. There are, no doubt, at this time, perſons who deny the poſſibility of diſſolving a ſtone in the bladder; arguing, that whatever menſtruum diſſolves a body of a texture ſo hard, muſt of courſe deſtroy thoſe veſſels through which it is conveyed. I do not think it neceſſary to obſerve, how far they diſcover their ignorance of the anatomy and œconomy of the human body, by ſuch a mode of reaſoning. In ſuch a caſe they do not even acknowledge that well-known property many medicines have of acting ſpecifically, or electively. May it not be aſked if there are not medicines which ſtrongly affect the laſt ſecretion

ſecretion of the body, without being felt in any manner by the ſtomach which firſt receives them? as in the caſe of cantharides. If mercury be rubbed into the ſoles of the feet, will not its effects be firſt found in the glands near the region of the head, particularly in the ſalival? with many other inſtances of the like nature,

It is however certain, that a cure for the ſtone is not to be found among the medicines which operate by a corroſive power only: there muſt be an affinity between the diſſolver and diſſolved, a *ſpecifical* and *local* operation on the urine, or the ſtone itſelf; otherwiſe we ſhould expect to find a cure in *aqua fortis, oil of vitriol, volatile ſpirits of ſal ammoniac, &c.* for either of thoſe will deſtroy ſome one principle of the ſtone, and might therefore, upon that weak foundation, be called *litwontriptic.*

In

In attempting to convince perſons theoretically of the poſſibility of diſſolving a ſtone in the human body, it will be neceſſary they admit the two following poſtulata; firſt, that there are principles to form a ſtone in the urine of every one, but that a particular diſpoſition of the veſſels, through which that fluid is ſecerned, is neceſſary to the putting in execution that promptitude of the urine to run into ſuch concretions; ſecondly, that the conveying an extraneous body into the urinary bladder, as will hereafter be ſhewn, may ſupply the place of that diſpoſition of the veſſels to form ſuch concretions. Theſe premiſes being admitted,—then it muſt be obvious, that if we can deprive the urine of that property of running into concretions, although we do not change the diſpoſition of the veſſels themſelves, we prevent the accretion of the ſtone, and

that

that a ſtone already formed, cannot retain its coheſion where the urine is deprived of its principles, I doubt not of convineing the moſt incredulous: by the ratiocination deduced from the foregoing premiſes;—but leaſt the inſiſting on theſe premiſes, might be deemed begging the queſtion; proofs of their poſition will be given in ſeveral inſtances;—and ſhould all this be inſufficient, and a ſceptical reader is not to be combated by argumentation, and ſubdued by a rationale, I ſhall put an end to the combat by that inſurmountable weapon, *proof*, and which cannot fail of making proſelytes of all thoſe who have heretofore been perſuaded of the inſolubility of human calculi.

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A DIS-

A

DISQUISITION

OF THE

STONE AND GRAVEL.

CHAP. I.

SECT. I.

BEFORE I treat of the cauſe of the ſtone and its concomitant ſymptoms, it may not be thought improper by ſome of my readers, to give a ſhort anatomical deſcription of the parts more immediately concerned in that diſeaſe, as it will enable them better to comprehend ſeveral ſections in the following diſſertation.

OF THE KIDNEYS.

A human body contains two kidneys, both placed in the poſteriour part of the lower cavity of the abdomen. The right is ſeated under the great lobe of the liver, the left nearly between the ſpleen and muſculus lumbaris; both under the meſentery or duplicature of the peritonæum.

In man, the right kidney is ſomewhat lower than the left; but in quadrupedes, the left is generally the loweſt.

They have each two membranes, (the exterior of which joins them to the loins and diaphragm) and are faſtened to the bladder by the ureters. They are of a glandulous ſubſtance, interſperſed with an infinite number of ſmall pipes or canals, and in figure much reſemble

reſemble a bean: whence the name *kidney bean.*

They receive their blood-veſſels from the vena cava and aorta by the renal veins and arteries, as they are properly called, whoſe numberleſs ramifications extend through the whole ſubſtance of the kidneys, and terminate in glands of a globular form, which compoſe the cortical part of the kidney, of about half an inch thick, and of a liver colour.

From each of theſe glands iſſue out the tubuli belliniani, which extend themſelves toward the pelvis, or internal cavity of the kidneys, and form the papillæ; adjoining to which, is the canal called fiſtula membranacea, thro' which the urine is conveyed, that it may be diſcharged by the ureters into the bladder.

The blood, remaining after the ſecretion of urine, is remitted to the heart by the minute capillary veins, which ariſe from the extremities of the arterial branches, being incloſed in the ſame capſular with the artery that terminates at the cava.

There are likewiſe a multiplicity of muſcular fibres in the ſtructure of the kidneys, which demonſtrate, that they are of other uſes than that of ſecreting the urine; *viz.* for aſſiſting in the ejection or expulſion of any concreted ſubſtance that might be lodged therein.

SECT.

SECT. II.

OF THE URETERS.

THERE are alſo two ureters which pierce the ſubſtance of the kidneys, and convey the urine from their cavity into the bladder. They are generally of the ſize of a gooſe-quill,—are membranous and fiſtulous, and of unequal diameter; and though they are capable of great dilatation, yet obſtructions in them frequently happen, which are of infinite conſequence to the patient, occaſioning a ſuppreſſion of urine, &c.

SECT. III.

OF THE BLADDER, OR VESICA URINARIA.

THE bladder is compoſed of three membranes; the exterior common from the peritonæum, the other two, proper to themſelves. The middle one is made up of carnous fibres, longitudinal and circular. By the action of the longitudinal the fund of the bladder is preſſed forward towards the os pubis, from the lower part of which they ariſe, as well as from the fore part of the proſtatæ; while the circular ones, by leſſening their dimenſions, excite and procure the diſcharge of the urine.

The inward membrane is nervous, and of an exquiſite feeling: hence is accounted

accounted for the violence of the inflammation when the urine is become acrimonious by being too long retained, it being proved to be the moſt putreſcent of all known liquors.

The bladder would be ſubject to many more accidents, were it not defended on all ſides by a vaſt number of glands, which continually emit a mucus that ſerves to blunt the urine of its ſalt. When this natural mucus is deficient, a diſeaſe of another nature is produced, which can only be remedied by taking freely of balſams and mucilages to ſupply its want.

It is a kind of reſervoir which receives the urine of the kidneys, that it might not be evacuated continually, and againſt the will; as I once obſerved in a boy who had no bladder, and

and who uſed to beg among the faculty for his ſupport.

For the more eaſy emiſſion of the urine, nature has furniſhed it with a ſufficient excretory duct, which is the urethra. This is tender, like the inward membrane of the bladder, and is lined in the ſame manner, with glands which emit a viſcous mucus that defends the paſſage from being excoriated by the urine.

Both the bladder and urethra derive their veins and arteries from the epigaſtric and iliac nerves, and from the pelvis of the abdomen; and, by communication or ſympathy, are often equally affected in an acute inflammatory diſeaſe.

As from the unnatural temperature or ill condition of the urine, proceed the various diſeaſes of inflammation,

&c.

&c. I shall treat briefly of its constituent principles, that its nature may be better understood.

SECT. IV.

OF THE URINE.

THAT the urine is an elementary fluid, or rather made up of elements, is evidently demonstrated by the frequent experiments made on it by chymists, from which they extract an insipid lymph, a volatile spirit, an acid saline matter, some oil, and a fixed earth.

There is a singular property in the urine, which is, that many medicines affect it even before the stomach, which first receives them: indeed, it may

may be properly enough ſaid, without any ſenſible effect perceived in the ſtomach, inteſtines, or even in the blood itſelf, from which the urine is immediately ſecreted.

We find that a bliſter will induce a dyſury and inflammation of the neck of the bladder, by rendering the urine acrid with its ſalt, when perhaps no other part feels any inconvenience. The ſmell of paint, will produce the like in a milder degree, and give the urine when firſt made, the fragrance of violets; notwithſtanding, theſe affect not the blood or its circulation.

This peculiar property of the urine, was a ſuggeſting motive for my enquiries concerning a remedy for the ſtone, upon the principle of a ſpecific operation.

This

This is all which need be ſaid in delineation of thoſe parts to which the diſeaſe I am treating is confined; and ſo much is really required, ſince it will enable thoſe who are affected with it, the better to conceive its nature, and the more accurately to deſcribe its ſeat and ſymptoms when they apply for relief.

CHAP.

CHAP. II.

SECT. I.

OF THE GRAVEL.

WHEN we have conſidered the nature of the fluids of the human body, particularly the urine, and alſo, that their circulations and progreſſive motions may be retarded, as well as accelerated, by various means and accidents, no wonder that the urine will depoſit, in the part where it reſts, an earthy ſediment, which it never fails to do when out of the body.

Heat being generated, and maintained by motion, it is evident, that when

when this is clogged, or impeded, the fluids will grow cooler, and the urine more liable to let fall its earthy part.

For the actual cauſe of the *gravel*, the reader is referred to chap. III. ſect. 4. which treats of the cauſe of the *ſtone*, ſince both are, in fact, the ſame diſeaſe in different degrees; and the ſame means which produce the former, muſt, and do evidently, bring on the latter.

SECT. II.

OF THE SYMPTOMS OF THE GRAVEL IN THE KIDNEYS.

THE ſymptoms of the gravel are various, according to the degree of violence of the diſorder itſelf; but the moſt

moſt common are a dull obtuſe pain in the kidneys, or in that part of the loins where they are attached. Sometimes the pain is acute, accompanied with bloody water, which, if retained any time in the bladder, becomes of a darker or coffee colour. A nauſea and vomiting will likewiſe be excited; frequently a total ſuppreſſion of urine from ſpaſms, induced by the irritation of the particles of gravel in the kidneys, and the pain will extend itſelf along the ureters to the bladder; in which caſe an uneaſineſs is felt in the ſide, particularly after a full meal, or much exerciſe, or from any diſtortion of the body, riding on horſe-back, &c.

The pleura is often a ſufferer from its proximity to the ſeat of the diſorder, and the patient feels a pain in his ſide, in reſpiration, and it is not uncommon to find a pain even in the top of the ſhoulder.

The

The kidneys, as well as all other organical parts, are ſubject to inflammation, reſolution, and ſuppuration; which laſt is not abſolutely incurable, as it may ſometimes be remedied by balſams that deterge and diſpoſe to heal. Balſams of capivi, terpentine, &c. are of ſervice here; likewiſe, drinking freely of mucilaginous drinks, as barley-water, marſh-mallow tea, and ſuch like.

That ſpecies of rheumatiſm, called lumbago, has been frequently miſtaken for a nephritic complaint; but the former may be diſtinguiſhed from the latter in this, that the patient may induce a pain by bending his body forwards, the muſcles being put on the ſtretch: on the contrary, if it be the gravel, his pain will neither be increaſed nor diminiſhed by it.

SECT.

SECT. III.

OF THE SYMPTOMS OF THE GRAVEL IN THE BLADDER.

THE ſame complaints, with a little variation, will affect a perſon when the gravel is in the bladder. At times a ſtrangury is the conſequence of the ſtimulus of the earthy particles againſt the ſides of the bladder, to which it is liable, from the fineneſs and number of its nervous branches.

It is neceſſary to be particularly attentive to the cure of the gravel, as by that means, the formation of a ſtone may be prevented.

The ſymptoms of gravel in the bladder are the ſame, throughout, as thoſe of the ſtone of the ſame part, only in a milder degree.

SECT.

SECT. IV.

OF THE CURE OF THE GRAVEL IN BOTH BLADDER AND KIDNEYS.

SINCE it will be ſhewn hereafter, that the gravel and ſtone are not only produced by the ſame cauſe, but are, in fact, the ſame diſeaſe, in different ſtages or degrees; the cure of the former muſt of courſe be much involved in that of the latter, with this difference however, that in the gravel we may venture to give diuretics and ſtimulants, which we cannot with ſafety adminiſter in the ſtone, inaſmuch as all ſtimulants do miſchief where the calculus is too large to paſs. Every one's reaſon muſt inform him, that if the concretion, in ſuch a ſtate, be driven forward, the conſequence muſt be a laceration in the part, and perhaps a

ſubſequent ulcer, or dangerous hæmorrhage of blood.

This circumſtance happened within my obſervation, ſome time ago, in a man to whom I was called a ſhort time before he died. As he had been incapable of anſwering any queſtions (the loſs of blood having thrown him into a deliquium) it was requeſted, that he might be opened; when it appeared, that a piece of ſtone, about four grains in weight, had lacerated the left ureter, and brought on the diſcharge of blood which occaſioned his death: for when it had inſinuated itſelf into the ureter, it became a ſtimulus, and induced ſuch convulſive twitches and contractions in the part, as proved fatal to him.

A caſe, in ſome reſpects ſimilar to this, occurred to a private ſoldier in the regiment to which I was ſurgeon laſt war; he made ſlight complaints of

the

the gravel at times, but had never neglected his duty on account of it—being at exerciſe on a field-day, and in the act of grounding his firelock, he was ſenſible of ſomething ſlipping into his right ureter, and upon his riſing again in taking up arms, the ſudden jerk of his body in that motion, gave him the moſt poignant agony, and he fell out of the rank, and was carried to the hoſpital, where he paſſed near three pints of almoſt pure blood; he continued to make diſcoloured, or coffee water, for many days afterwards, and as he was of an indifferent habit of body, the wound degenerated into an ulcer and killed him, in ſpite of all medicine, and even though the ſtone which occaſioned all this was voided.

Stimulating diuretics are, nevertheleſs, very ſerviceable in the moſt ſimple ſtate of the gravel, when the bladder, by its laxity and inertneſs, has

ſuffered the urine to ſeparate and depoſite its earthy part therein, in the form of ſand. The common diuretics of the ſhops, and ſuch as have been moſt frequently uſed in the gravel, are the *ſpiritus nitri dulcis*, *ſal diureticus*, *lime-water*, and all *terebinthinate preparations*.

Although the ſymptoms of the gravel are different according to the ſeat of the diſeaſe, yet the cure ſhould be undertaken in the ſame way, whether it be in the kidneys or bladder: I would recommend a doſe of Rochelle ſalts and manna as a purge to precede the other remedies; ſweet ſpirits of nitre is a moſt agreeable diuretic, and is attended with none of thoſe conſequences to which ſoap, lime-water, and turpentine are.

Notwithſtanding bloody urine is ranked among the ſymptoms of the gravel

gravel in the kidneys, yet it is always to be doubted whether it be not rather the conſequence of a ſtone; in which caſe, I would adviſe every one to avoid ſtimulating diuretics or forcing medicines; for although ſuch ſymptom may ſometimes be produced by looſe gravel; yet, I dare ſay, nineteen times out of twenty, it is really that of a ſtone. Indeed at all times the ſymptoms, whether of ſtone or gravel in the kidneys, run ſo much into each other, that it requires a very minute attention to diſcriminate them. It is a conſolation however, to the afflicted, in thoſe caſes, to know that although the means we might purſue in curing the gravel, would be highly improper in the ſtone; yet theſe experiments have ſuggeſted to us, that the ſame medicine which can cure the ſtone, muſt be equally efficacious in the gravel: — for there cannot be a more lamentable ſtate, than a man under the doubt and perplexity of

two diſeaſes, where the treatment of the one muſt be diametrically oppoſite to that of the other.

The regimen of the gravel, whether in the kidneys or bladder, ſhould be adapted to the urgency of the complaints. A cooling diet is always proper; and if the urine be hot, and high coloured, plentiful draughts of balſamic liquors ſhould be taken; ſuch as veal broth, barley water, marſh-mallow tea, ſyrup of capillaire, or orgeat. It will alſo be neceſſary to attend minutely to the ſediment in the urine, whether it be of an earthy or ſlimy kind; if of the latter, it indicates great irritation. In this caſe, violent motion ſhould be avoided; and large draughts of the above diluting liquors be taken every three or four hours 'till it abate.

Let it be obſerved, that exerciſe is always to be recommended where the gravel

gravel is evacuated without pain:—but if irritations, diſcoloured water, or pain, be attendant on the diſcharge, reſt muſt be indulged, and the body kept cool.

After the total expulſion of the gravel, it will be proper to have recourſe to aſtringent and ſtrengthening medicines; but above all, the cold bath muſt not be omitted.

CHAP. III.

SECT. I.

OF THE STONE.

THE ſtone, called in Latin, *calculus*, from its reſemblance to ſtones of the earth, is found by a chymical analyſis, or decompoſition, to conſiſt (as well as urine) of an earth, air, oil, and volatile ſalt; and that theſe are capable of forming bodies of the hardeſt texture, by attraction and adheſion, is clearly proved in the making of glaſs, which is a combination of earth (or ſand) and ſalt, with fixed air. The human calculi are of very different degrees of denſity and coheſion; ſome being ſo looſe

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and friable as to crumble to pieces between the fingers, while others have been taken from the body, of such a compact and flinty nature, as to ſtrike fire in colliſion with ſteel; from which it is eaſy to conceive, that the violence of the ſymptoms of the ſtone muſt be various.

It is no wonder that ſtones ſo often form in the kidneys, ſince the diſpoſition of the urine will naturally ſhew itſelf as ſoon as it is ſeparated from the blood; that is, the ſtony particles having as ſtrong an endeavour to unite with one another in the kidneys as in the bladder, will, in conſequence of meeting firſt there, be moſt likely to produce gravel and ſtone in that part; where they continue to accumulate till ſpaſms, or convulſive twitches are excited, by which they are ſometimes thrown into the ureters, and thence into the bladder.

It is not poſſible to ſay how large a ſtone would grow in the body, provided the patient could live under the torture. They would undoubtedly continue to encreaſe as long as the bladder could perform its office. We know there have been ſome cut out of the bladder ſo large, as to meaſure eleven inches round, weighing ſeventeen ounces, or more: and in the Hôſpital de la Charité is a ſtone, which weighed, when firſt extracted, fifty one ounces.—All ſtones become conſiderably lighter, when expoſed to the open air.

SECT. II.

OF THE CAUSES HITHERTO ASSIGNED OF THE STONE.

CHYMISTS, and many natural philoſophers, as Sir Iſaac Newton, &c. have analyzed or decompoſed the human calculus,

calculus, and have found it to conſiſt of thoſe principles already deſcribed in the preceding ſection: and although the different authors could not but agree as to the nature of the ſeparate principles which compoſe the ſtone, yet almoſt all of them have entertained different opinions of the cauſe of conjunction of theſe principles in forming it.

It may probably be thought preſumptuous in me to attempt to account for *that*, which rendered vain the labours of ſo many men, eminent for their learning and ſagacity. After reciting my adopted motto, "*Plus vident oculi quam oculus*," I confeſs myſelf indebted to the reſult of their reſearches for many particulars, which otherwiſe, might never have occurred to me. The immortal HERVEY, who diſcovered the circulation of the blood, left ſtill enough to be done by his ſucceſſors, in applying it to phyſic and anatomy: and although

although the ancient phyſicians were unacquainted with that part of the animal œconomy, yet in point of learning, may it not be ſaid, they were equal at leaſt to moſt of the moderns, and that they laid the foundation of many ſtructures which embelliſh and adorn the preſent phyſical age.

This ſhews the weakneſs of giving up a purſuit, becauſe it has been fruitleſsly undertaken by one or many *great* men. Some of the firſt phyſicians have aſſerted, that the operation of many medicines, in particular *mercury*, was indefinable; and yet I am inclined to believe, there are but few, at this time, who do not know on what *its* ſpecific qualities depend.

Without any further apology than for oppoſing the opinion of my learned predeceſſors, I ſhall appeal to the judicious and candid, how far I have re-

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moved the epithet of *occult* from the cauſes of the ſtone.

The firſt who treated of this diſeaſe, attributed the cauſe of it to an error in the non-naturals, particularly an improper choice of food, to which was added, the too free uſe of crude unfermented liquors. This cannot poſſibly be the caſe, ſince we ſee all ranks of people, the ſober as well as the luxurious, partake of this diſeaſe. Climate was then imputed to be the cauſe of the ſtone; which can by no means be allowed, as we find in hot as well as in cold countries, the ſtone exerts an equal influence. It has alſo been conſidered as analogous to the tartar in wine, and that it was produced by a too free uſe of that liquor. This cannot be deemed more concluſive than the former, becauſe, in countries where wine is little drunk, nay, the perſons never taſting of it, have nevertheleſs been tortured with

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the ſtone. A petrifying quality in the fluid we drink is ſaid alſo to occaſion the ſtone; to ſupport which opinion, Paris is mentioned as a place where that diſeaſe abounds, from the quantity of ſtone contained in the river Seine: but from a ſtrict enquiry concerning this matter, I am fully convinced, that there is not an over proportional number cut in Paris than in London; and the greater part of thoſe come from towns and villages where the Seine has no communication.

To ſatisfy myſelf how far an attention to the water we drink might conduce to prevent the ſtone or retard its growth, I ſet about making the following experiments. I cauſed a tin kettle to be made in the common form, except that the cover was raiſed by means of a jetting open rim, to the height of one inch, and being of a larger diameter than the kettle itſelf, it entirely kept

out

out any duſt that might accidentally fall down the chimney; while its conſtruction as readily ſuffered the water to evaporate. I then ſet a common alembic to work, in which I diſtilled ſeveral hundred gallons of New River water, and ſupplied the evaporating kettle from the worm as it ran off. The head of the ſtill had a ſwan neck, and being ſlowly worked, nothing but the fluid in its pureſt ſtate could be drawn off. After thirty-ſix hours operation, I ſuffered the kettle to run dry, and examining it carefully, I found a conſiderable portion of ſaburra or earth, after the manner of the fur or cruſt adhereing to a tea-kettle.

And further to prove the impoſſibility of obtaining a *ſtrictly* elementary or rather homogeneous fluid, I made an experiment with ſnow-water in a ſmaller degree, but ſufficient to diſcover that it alſo yields a cruſt after a continued evaporation.

poration. This led me to conclude, that there is no proſpect of obtaining a pure water, that does not contain a portion of earth; and I am fully perſuaded, that if the evaporated fluid had been again condenſed and made the ſubject of a third coction, there would ſtill have been collected ſome particles of earth. In a reiterated diſtillation, I ſuffered the water, after it had been drawn off, to ſtand covered over three days, and boiling it the ſame time as before, a greater quantity of ſaburra was collected; by which I conceive, that the primary particles of earth had time to attract each other, and conſequently, by increaſing their ſpecific gravity, were leſs liable to be carried off in the effluvium. Now, although we ſhould conſtruct a ſtill with a neck of a wonderful height, that much more of the groſſer earth might be detained in the bottom, (for I forgot to mention that a great deal more ſaburra was found in

the ſtill than in the kettle, although the water was at firſt apparently clear) yet that would not be likely to do more than catch the particles in a collected ſtate; for it is obvious that the primary particles of ſtone are many times lighter than quickſilver; and yet that ponderous body can be ſo rarefied as to be borne up by a very ſubtile æther, or fine vapour. It is therefore plain, that although you might diſtill water until you could no longer diſcover ſtony particles in it, it would not prove there were none; on the contrary, it will be found, that after it has been ſtrained, filtered, and diſtilled, *as it were*, through ſome of the fineſt veſſels of a human body, (which are a thouſand times more exquiſite and elaborate than any *art* can invent) I ſay, that after all this, it will be found to contain theſe primary particles of ſtone.

Some time after I had made the foregoing experiments, I was informed that

a gentleman of Lincolnſhire had been cut for the ſtone, and in hopes of avoiding that cruel perſecution again, had furniſhed himſelf with a ſtill, through which he had drawn, for four years, every drop of water he uſed; not only as drink, but even to prepare all his victuals in; and yet he was unhappily ſeized with the diſorder a ſecond time in his kidneys. Many other perſons have been led to drink only diſtilled water, from a notion of its being entirely freed from its earthy particles; which indeed, has, at firſt view, a great deal of plauſibility in its favour.

SECT. III.

INFERENCES DRAWN FROM THE LAST SECTION.

SEEING then that we cannot, by any known operation, free water from a certain

certain quantity of earth, we muſt conclude, that in it, is contained the eſſential matter of the diſeaſe; nevertheleſs, it cannot be ſaid to be the diſeaſe itſelf, becauſe thouſands continue in health who drink it without reſtraint.

Thus much being premiſed to ſhew, that no one of thoſe cauſes of the ſtone hitherto aſſigned, is the *true* one, and that it is not in our power to prevent the diſeaſe from falling to the lot of ſome among us, it behoves me to declare what, in my opinion, is that *true cauſe*.

In order to underſtand this ſubject more perfectly, it is neceſſary to deſcribe by what means the fluids we drink are conveyed to the blood; from which it will appear, that although a man ſhould ſwallow a quantity of ſand, or powdered ſtone in his drink, he would be no more liable to have a calculus form

in his body, than if he had taken the fluid in its natural ſtate.

The chyle, or any other fluid, is conveyed to the blood from the ſtomach, by means of ſmall lacteal tubes or pipes. Nothing can paſs from the mouth, or more properly, from the ſtomach to the blood, but by means of theſe concoctive ſtrainers, which are the ſmalleſt in an animal body. If this was not the caſe, ſuch particles of matter might be admitted into the blood as could never be diſcharged again, which would conſequently be productive of the moſt inveterate obſtructions. It is equally certain, that the abſorbent veſſels or recipient lymphatics, which are ſpread over the ſurface of the ſkin, are ſmaller than the interior ones, otherwiſe the ſame mortal obſtructions would enſue. Now it is evident, in fact, from microſcopic obſervations, that the largeſt blood globules do not exceed $\frac{1}{1000}$ part of an inch

inch in diameter: it is alſo well known, that the diameter of a particle viſible to the naked eye, muſt not be leſs than the $\frac{1}{100}$ part of an inch, whence it follows, that the magnitude of one of theſe large blood globules, is leſs than the largeſt viſible particle in the proportion of 8000 to 1; and therefore, ſhould theſe blood globules, without any further attenuation or diviſion, be ſuppoſed to paſs the glandular ſecretories, they muſt come off in an extremely thin attenuated effluvium or vapour, the particles of which would be 8000 times leſs than any ſenſible or viſible particles: but it is certain, that the diameters of the largeſt ſecretory ducts or glandular ſtrainers muſt be leſs than the leaſt of the blood globules, otherwiſe theſe blood globules themſelves would paſs thoſe ſtrainers, and be thrown off in bloody ſecretions, which we know cannot happen in a natural ſtate of the fluids and ſolids.

How much leſs the ſmaller globules are than theſe already taken notice of, cannot eaſily be aſcertained, ſince they are imperceptible, even by the beſt microſcopes.

It is a fact that Lieuenhoek and others have diſcovered an infinity of theſe ſecretory and excretory veſſels, the diameters of which do not exceed $\frac{1}{80000}$ of an inch, and conſequently a fluid cannot paſs and repaſs them, until it has been ſo far rarefied and volatilized, as that its largeſt particles ſhall be leſs than any viſible or ſenſible particle, in the proportion of 512,000,000 to 1.

This great rarefaction of the fluids in their circulation, or emiſſion to and from the blood, may ſeem ſtrange to ſome, and yet it is certain, that fluids are capable of being rarefied or effluviated into any aſſignable degree of tenuity. To make this familiar to us, let us but conſider,

conſider, how far the moſt denſe and ſolid ſubſtances, as thoſe of metals, may be divided or attenuated by the help of art.——Doctor Halley has proved (ſee Philoſophical Tranſactions) that one ſingle grain of gold is ſufficient to overlay or gild, ninety eight yards of wire; and has alſo ſhewn, that the thickneſs of theſe *lamellæ* does not exceed $\frac{1}{1\,2\,4\,6\,0\,0}$ of an inch, which is leſs than the diameter of one of theſe ſmall excretory tubes before taken notice of.

Now, from what has been advanced, it is obvious, that nothing can paſs the lacteals, and be taken into the circulation, but in the form of a fine attenuated vapour; therefore, all the powdered oyſter and egg-ſhells, and other inſoluble ingredients, in the compoſition of ſeveral reputed lithontriptics, ſince they cannot be abſorbed by the lacteals, can in no way materially affect the urine. This account of the œconomy of the

ſecretions of the human body may to many ſeem very wonderful; but it is a fact, that all the boles, calcined earths, and minerals, commonly preſcribed as alteratives of the blood, cannot poſſibly reach that fluid. If it be aſked why impurities of the blood are often removed by cinnabar and other preparations of antimony if they are not abſorbed with the chyle, I anſwer, that by deterging the *primæ viæ*, & viſcera, and cleanſing the orifices of thoſe veſſels in their paſſage through the body, ſuch veſſels are enabled to convey a larger portion of chyle into the maſs; and conſequently, the diſeaſe is gradually overcome by nature throwing off through the excretories, in proportion to the additional abſorption, and thus they appear to be alterative.

Notwithſtanding the ſurpriſing ſmallneſs of theſe veſſels, we need not wonder how a body ſo large as that of a man, ſhould

ſhould receive ſufficient nouriſhment thereby, when we conſider the vaſt infinity of them, and that the ſtomach and ſmaller viſcera are capable of abſorbing and carrying to the blood by their means, ſeveral gallons in twenty-four hours. Nor is it poſſible to ſay what quantity of urine the kidneys are capable of ſecreting from the blood in that time; but, I have (in a caſe where poiſon was ſuſpected to be received into the blood) ſo ſupply'd a man with diluting liquors, that he made ſeventeen quarts of urine in one night's time, the greater part of which, from its ſhort ſtay in the body, was evacuated quite inſipid —At a more convenient time, I ſhall endeavour further to amplify and elucidate this part of the animal ſecretion, ſo far as concerns the cure of cutaneous eruptions, and glandular obſtructions: thus much I judged neceſſary here, as it proves incontrovertibly, (contrary to the general opinion) that the ſtone is not

occaſioned

occaſioned by an improper diet:—neither can the blood, in any degree, be ſaid to circulate or convey any concreted ſtony particles to the kidneys; for it has been ſhewn before, that the glands of the kidneys are ſmaller than the lacteals themſelves; they therefore could not paſs, but would, in accumulation, occaſion diſorders, more immediately fatal, than that of which we are treating.

From the very great difficulty of eſtabliſhing any new opinion, which militates againſt a generally received one, I think it neceſſary to relate the particulars of the following experiments, which, as they may be repeated by any indifferent perſon, will be likely to exempt me from the imputation of ſubſtituting hypotheſes for facts.

EXPERIMENT I.

I took a fragment of a human calculus of 5 grains weight, and put it in the urinal

urinal of a perſon, who never had had the leaſt complaint of the gravel or ſtone, and whoſe water was perfectly pure and tranſparent:—after continuing it thus for ſeven days, I weighed it, and found but little alteration; but conſidering that the motion of the urine on the ſtone, might diſlodge any ſaburra that ſhould looſely adhere to it, and thereby fruſtrate the experiment, I removed it into another veſſel, and poured the urine gently into it after it was made; by this means it was ſuffered to be more at reſt. At the end of twelve days, I again weighed it and found it had gained more than half a grain. I could obſerve, by the help of a glaſs, that the accumulation was principally on the roughest ſide, which was that broken from the compleat ſtone. The ſame experiment I repeated with the urine of a child, and found the ſame effects in almoſt an equal degree.

EXPERIMENT II.

A gentleman applied to me to be cured of a ſtone in the bladder; but as he had at that time another diſorder upon him, which required an immediate attendance to, I forbore during a fortnight, to preſcribe to the ſtone, but deſired that his urine, during that time, might be poured upon a bit of calculus of exactly eight grains weight: now although its ſurface was larger than the firſt fragment, yet, at the end of that time, it was not increaſed in the ſmalleſt ſenſible degree. I was not however perfectly ſatisfied with this experiment, ſuſpecting that the medicines he was taking, might have prevented his urine from giving out its ſhare of earth: to clear up this point, I got the urine of two perſons, under the ſame courſe of medicines in Bartholomew's hoſpital, into which I immerged a piece of calculus as before;

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at the end of only nine days, it was increaſed nearly half a grain; from which it is demonſtrably plain, it was not any thing in his courſe of medicine that with-held the urine from reſolving into that earth, which ſhould have increaſed the piece of calculus, as in the former experiment.

The inference to be drawn from the above is, that the ſtone, already formed in his bladder, attracted the earthy particles from the urine as ſoon as it came into the bladder: I was further confirmed in this, by his telling me, that for ſeveral years, previous to his attack of the ſtone, he had voided urine, at times very thick and muddy, or ſandy; but that ſince he had diſcovered he had a ſtone formed, his urine had been at all times clear and free from all ſand or grit; nay, that it was bright as amber, except when he had taken any violent exerciſe,

exercise, after which it would be loaded with mucus, or tinged with blood.

After I had made these experiments, and the conclusions from them, I read Dr. Priestley on fixed air, with an attention that writer merits.——Had those volumes fallen into my hands before, I might have saved myself much labour and reflection, in discovering that we cannot prevent the stony atoms from making their way into the urine; since this ingenious author proves, that earth can be converted into air, and even rendered respirable: it is therefore not physically impossible that we receive many of those particles in inspiration, as well as by the work of chylification; for the chyle itself must be subtilised into a vapour before it can pass the lacteals. We may therefore be perfectly assured that no human art can with-hold the stony matter from the urine, how far

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the particles may be retarded from running into cohesion, is the subject of a very material and future consideration.

SECT. IV.

OF THE REAL CAUSE OF THE STONE.

THE first experiment with the evaporating kettle convinces us, that water cannot, by any human operation, be freed of a certain portion of earthy particles, which are in themselves so light as to be carried over the helm of a still with the vapour; and that this is not only so in fact, but consistent with reason, is evident in the distillation of quicksilver, which although specifically twenty times heavier than the hardest marble, is susceptible of that diffusion.

These earthy particles, for the sake of perspicuity, shall hereafter, be distinguished

guiſhed by the name of *primary particles of ſtone*; and that theſe ſame particles are the only ones capable of forming a ſtone in the human body, is proved by what has been already ſaid on the nature of the veſſels, which convey the chyle into the blood.

The firſt experiment in the laſt ſection as clearly proves, the urine of all perſons partakes of thoſe primary particles of ſtone, which are contained in the fluids we drink; ſo that the only conſideration which remains is, what firſt induces the concurrence of thoſe primary particles ſo as to become a nucleus of the ſtone: for, from the ſecond experiment of the ſame ſection we find, that when once a nucleus exiſts in the body, it collects by its attractive power, the particles about its ſurface, and thereby accumulates continually.

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By the œconomy and ſtructure of our frames, it is required we ſhould drink a certain quantity of fluid to aſſiſt in aſſimulating our food, and to convey the nouriſhment of it to the blood, further to be diſtributed for the growth and ſtrength of the whole body: now, as it has been proved that water, in its pureſt ſtate, ſtill contains an infinite number of thoſe primary particles of ſtone, it is evident, that we are liable, every hour we live, to be attacked with this diſeaſe. For it is plain, that the ſerum of the blood, which yields the urine, contains thoſe ſame primary particles of ſtone: they having been conveyed thither with the chyle. The coheſion of thoſe particles however, never takes place 'till they are carried with the urine to the kidneys; the reaſon of which is, that the particles are kept farther aſunder while circulating in the common maſs, and conſequently out of the power of attraction of each other. The globules of blood,

by their ſpherical figure, muſt alſo have a conſiderable ſhare in preventing the particles from entering into contact with one another. No ſooner then, has the ſecretion taken place in the kidneys, and the urine concentrated as it were, than the corpuſcles are brought nearer to each other, and thus begin their attraction and coheſion. In like manner is the chryſtalization of ſalts obtained, which however, never takes place 'till the fluid is, by evaporation, condenſed to a certain degree, nor does this work begin before the liquor in which the ſalt is ſuſpended, begins to grow cool.

But the moſt powerful impediment to the attraction and coheſion of thoſe ſtony particles while with the blood, is the continued circulation of this fluid; ſince, ſhould they accidentally be brought into contact, the force with which they would be driven, would deſtroy the attractive and coheſive pow-

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er, and excite a repellent one. That this is actually the caſe in both principles, may be illuſtrated by the experiment of two ſmall globules of quickſilver, which though ſtrongly inclined to take up each other in the moment of contact, yet were they to be driven together with a force equal to the blood's circulation, they would loſe their attractive power and would be overcome by the repellent one. This is not only the caſe with coheſive attraction, but it holds good alſo, in the other kinds, whether magnetic or electric; for if the propelling force be too great, repulſion is the natural conſequence.

Thus a ſufficient reaſon is given why a calculous concretion never can take place in the blood, as life would be extinguiſhed before the circulation could be leſſened to a degree ſufficient to ſuffer a coheſion. No ſooner then has the ſecretion taken place in the kidneys, and

conſequently, the fluid concentrated in which the ſtony atoms float, than theſe atoms or corpuſcles are brought nearer to each other, and begin and continue their attraction; and as ſoon as two of theſe particles ſhall have met in contact, their power of attraction is augmented (ſuch power being in proportion to the ſurface of the attracting bodies) 'till, at length, from their increaſed ſpecific gravity, they precipitate to the bottom of the fluid, in the ſhape of ſand or gravel; and this is the ſtate of the diſorder which ſhould be denominated *the gravel.*

The circulation of the blood through the kidneys as well as the liver, is naturally languid, which renders them equally liable to obſtruction. The jaundice is the conſequence of the latter, as the ſtone is of the former.

Now

Now although the concretion, as has been already ſhewn, begins as ſoon as the urine is in the pelvis of the kidney, yet it may not arrive to ſuch a degree as to bring on even the gravel there; but the urine, further diſpoſed and prepared for the concretion, may, and does frequently, finiſh the work in the bladder.—Should this organ be preternaturally feeble, as well as the kidney, a ſtone will undoubtedly be formed in a very rapid degree; for as ſoon as a conjunction of the particles is increaſed to any material bulk, it not only acquires a multiplied power of coheſion, but likewiſe attracts from greater diſtances; ſo that other aggregate particles will be taken up in its accumulation.—This is manifeſted in thoſe congeries of ſmall ſtones, called grape-ſtones, the interior piece of which is always larger than thoſe around it. It is very uſual indeed, to find ſeveral ſtones in the bladder, becauſe, as they are generated in the kid-

neys, they may be thrown over into the ureters ſo large, that they cannot be further taken up in the way of attraction; for in this caſe another power, viz. gravity is oppoſed to it.

The phænomenon of the ſtone's accumulation I have traced through its various and progreſſive gradations, and particularly pointed out that which deſerves and requires the appellation of *gravel*. The duration of the diſeaſe at this ſtage depends, as has been before obſerved, on the irritability or inertneſs of the kidneys and bladder; for under the former circumſtance a perſon may eſcape the ſtone a long time, by evacuating the ſaburra freely with the urine; but, on the other hand, ſhould there be any debility in thoſe organs, it is next to impoſſible but a ſtone and its accompanying train of evils enſue—it is therefore clear, that gravel and ſtone are the ſame diſeaſe in nature and principle,

and are only differently denominated, according to the degree in which its progreſs is marked, conſequently thoſe perſons who ſuppoſe them different in their qualities, and that becauſe they have ſpontaneouſly diſcharged gravel with their urine without any inconvenience, are not likely to have the ſtone, deceive themſelves, and will probably be unhappily convinced, too late, to the contrary.

To ſum up and bring therefore, into a more familiar point of view, the cauſe of the accretion of ſtone, it muſt be conſidered that as ſoon as the urine has been ſecreted from the blood, and this fluid got into the kidneys, this work begins; for it may be concluded this fluid always circulates primary particles of ſtone, agreeable to the *mobilis univerſale*. Now in this continual change of place of thoſe particles, no wonder that they are brought near or into contact with each

other, and agreeable to another univerſal principle in nature, attract one another; it can therefore be no longer a myſtery that ſome perſons ſhould eſcape the ſtone and others not, any more than that ſome conſtitutions ſhould perfect the work of the ſtomach's digeſtion or ſanguification ſooner than others, or retain the fœces longer; for proportionate to the time the urine remains in the body after its ſeparation from the ſerum of the blood, is the hazard of contracting the diſorder we are treating of.—Exerciſe, above all things, promotes every ſecretion of the body, and is therefore the beſt and moſt natural defence againſt the ſtone. Volition too will have its effect in the excitation to urine.

Thus we ſee intenſe ſtudy will divert the influence of the *vis excretionis*, whereby the urine and all the other excrementitious matter is retained

longer

longer than its due time, and diſeaſe may be reaſonably expected: this doctrine needs no farther confirmation than to inſtance the number of Judges, Clergymen, and others, of a ſedentary life, who are afflicted with urinary and biliary obſtructions and concretions, and more particularly perſons of the firſt claſs; for from their avocations they are often obliged to oppoſe the *vis reſiſtendi* to the calls of nature, which cannot but do violence to her functions.

Having, in the cleareſt manner I am able, elucidated the work of lapidification, I am not willing to leave the ſubject without offering my opinion of the reaſons why a ſtone accumulates ſo much faſter in one perſon than another. That animal ſalt is a neceſſary ingredient in the compoſition of a ſtone has been before declared, and I am as fully perſuaded that the growth of a ſtone is determined by the quantity it meets with

with in the urine; it is equally ſatisfactory to me, that the quantity of ammoniacal ſalt is proportional to the longer or ſhorter time the urine remains in the body, for a pint of urine, newly ſecerned from the ſerum of the blood, will not contain a fifth part of the ſalt in it, the ſame quantity will, which has been longer ſecreted, this is ſufficiently evident, in a profluvium of urine where it ſcarcely participates of the ſaline matter at all: thus it is demonſtrably plain that it is conſiderably in our power to check the redundancy of this ſalt, by our manner of living, though we could not totally prevent it, or live without it in due quantity, any more than we could any one of the non-naturals. If children abounded with this ſal animalis, in an equal degree with adults, the ſtone would be their inevitable lot, from the ſupineneſs of their poſture in urining: but the all-wiſe providence has given them a deſire for, and appropriated them

that

that ſort of food which will not yield it but in a ſmall degree: this ſalubrious aliment is milk, it being formed from chyle in which the principal part of its ſalts are left behind; and this exemption from ſalts is a reaſon why it is found beneficial in the gout; notwithſtanding which, I do not mean to enforce its uſe in all caſes of ſtone, gout, &c. for there are many wherein it would be injudiciouſly adopted; this diſcrimination can never be ſo well made as by proper advice; for all the general rules I could lay down, would never be able to make the patient the phyſician, altho' many of my predeceſſors have undertaken to do it by thoſe means.

The cauſes of the ſtone being ſo plainly demonſtrated, it becomes a queſtion deſerving conſideration, whether no preventative means can be adopted with reaſonable hopes of ſucceſs, eſpecially in thoſe perſons caſes who devote themſelves

ſelves to ſtudy, and are unavoidably obliged to neglect, often for many hours, the excitations of nature; to which I anſwer, that to thoſe who are conſiderate enough to think of the danger they are expoſed to, a proſpect of aſſurance from this diſeaſe is held out to them, by a ſafe and ſimple expedient.—If the fœces are retained too long in the body, do we not by laxatives or cathartics ſtimulate the inteſtines to reject them? Bile, (ſo neceſſary to our health and exiſtence) is often redundant, and thereby occaſions a diſeaſe, do we not then by deobſtruents ſtimulate the liver and biliary ducts to procure its expulſion? and ought we not to be equally ſolicitous to purge the kidneys and urinary canal, when their contents have been too long with-held from paſſing off by the vis impreſſa, which perſons of the before mentioned deſcription are unhappily driven to exert againſt the calls of nature? The preventional medicine in

queſtion

queſtion muſt, it is plain, poſſeſs diuretic qualites, yet it ought not to be of that claſs which is generally preſcribed when the gravel is already formed.—The vague operation of ſome reputed diuretics and the failure in the effect of others have much diſcouraged this part of practice, and provoked ſome profeſſors to declare that no reliance can be had on any medicine of that claſs: I hope however, to clear this part of the medicinal art from ſuch a general cenſure, by a very ſimple preſcription, but of infallible effect—it is neither more nor leſs than this.

When a perſon has been too long with-held from an evacuation of urine, or by a ſpontaneous inertia of the ſecretories that fluid is too languidly ſecerned, or by an attendance in a cabinet, court of juſtice, place of worſhip, &c. and that paralyſis of the bladder, ſtony concretion, or other diſorder, may be the

the conſequence of it; he is, when he gets home or into a warm room, to order a baſon, or four or five cups of ſtrong green tea to be made, which he has no ſooner drank warm than he is to ſwallow a glaſs of rum, and repoſe in a chair or a bed; theſe means will not fail to produce a neceſſary and plentiful diſcharge of urine, and take away all apprehenſions of the evils alluded to, as well as the danger of fever, œdematous ſwelling of the legs, and a train of evils which often ſucceed the tranſudation of the urine through the bladder, and which paſſage the water will certainly ſeek when deprived of its natural one. The above caution however artleſs in its appearance, will, I am fully perſuaded, if attended to, be the means of exempting many from the ravages of one of the moſt cruel diſorders that torment mankind.

I flatter

I flatter myſelf, my readers will now be ſatisfied of the real cauſe of the ſtone, which has given riſe to ſo many hypotheſes; and that I have as incontrovertibly expounded the myſtery of the *nucleus* of the ſtone, that hitherto inexplicable and undefined production, it being found neither more or leſs than the conjunction of two of thoſe fixed, or primary particles of ſtone; thoſe two, when combined, attracting a third, thoſe three taking up a fourth; and ſo on, *ad infinitum*—how many thouſands of thoſe may be neceſſary to make up a particle viſible to the naked eye, cannot be aſcertained; but it is certain, that theſe atoms or corpuſcles muſt be infinitely ſmall, otherwiſe ſo many perſons could not eſcape the diſeaſe.

To illuſtrate the diſpoſition of the urine to form the ſtone, by a nucleus, it may be obſerved, that any extraneous ſubſtance being accidentally introduced into

into, and left in the bladder, will infallibly generate one, notwithstanding the perſon, prior to the accident, had never had the leaſt indication whatever of the gravel.

In St. Thomas's hoſpital the point of an ill-prepared bougie broke into the bladder of a patient, and generated a ſtone. — In Guy's hoſpital, a bit of leaden probe did the ſame. A drop of blood will become the *nidus* of thoſe earthy particles, and cauſe a ſtone: from theſe circumſtances it appears, that all extravaſations of blood are dangerous.

THE CASE OF MR. C**P**N.

MR. C———N, clerk to an eminent banker of this city, in the year 1774, contracted a diſorder which, in the end, obliged him to ſuffer the frequent introduction of a bougie. This he did for a conſiderable

conſiderable time, when accidentally one fell into his hands ſo ill-prepared, that about half an inch of the point broke off, and lodged itſelf in the bladder, having paſſed the ſphincter in its introduction. The accident being immediately diſcovered, he was a good deal alarmed, inſomuch that he inſtantly applied to one of the ſurgeons of St. George's hoſpital for advice, who conſoled him by ſaying, "That as the preparation of "the bougie was compoſed only of "linen cloth and an unctuous ſubſtance, "no extraordinary pain was likely to "enſue from the circumſtance. The "plaiſter part, he ſaid, would be daily "waſted, and the cloth might therefore, "by conforming itſelf to the paſſage, "be at one time or other waſhed out "with the urine; for that ſince he had "never had any, the ſmalleſt complaint "of the ſtone or gravel, or the leaſt ap-"pearance of ſaburra in his urine, he

"would, in all probability, eſcape a "diſorder of that nature.

After this advice, he perſevered as uſual for two months in the uſe of the bougie, at the end of which time he left it off entirely, and remained in the ſame ſtate for about eighteen or twenty weeks. Soon after the elapſe of this period, finding himſelf indiſpoſed, he came to conſult me upon his caſe, which was as follows; he had for ſome time ſuffered an uneaſineſs at the neck of the bladder, and on that part where the waiſtband of the breeches compreſſes;—he had alſo a frequent deſire to make water; and felt an acute pain about the time he had done making it, and even for a few ſeconds after; and was troubled with an itching or titillation at the nut of the penis. From theſe indications, I immediately pronounced the exiſtence of a ſtone in his bladder, and then

then I was informed of what I have related in reſpect to the broken bougie. Now, though I entertained no doubt of deſtroying the concrete formed upon the piece of the bougie, yet I told him, that the *ſolvent* (an account of which ſee hereafter) could take no effect on the rag itſelf; I was conſcious, however, that by diſlodging the concreted ſaburra, the ſaline part of the urine would act ſtrongly upon the rag, and its attrition would in time wear it gradually away; and the more to enſure ſucceſs from this method of procedure, I adviſed him, even after the ſtony part ſhould be deſtroyed and evacuated, ſtill to take *ſolvent* enough to keep the urine from giving out the principles of a ſtone, ſo that the rag would be kept always bare for the urine to act upon it. Mr. C—n ſcrupulouſly followed my advice; the conſequence of which was, that in five weeks the pain he had complained of left him entirely; and in ten days more,

the ſand ceaſed to come away, and there was every aſſurance of the piece of bougie being reduced to its natural ſtate. After this he continued to take now and then a doſe of the *ſolvent*, till at length he began to believe that the rag itſelf was worn to pieces, as he had often diſcovered part of it in his urine: this expectation induced him to leave off the medicine entirely, but he was ſoon convinced that there ſtill remained ſome part of the fragment of the bougie in his bladder; for the ſame complaints and pain were again revived, though in a ſlighter degree, and, for the ſecond time, he was obliged to have recourſe to the *ſolvent*, which operated exactly the ſame as before.—Indeed the certainty of his being liable to the ſame attack, while any the leaſt part of the extraneous body lay in the bladder, determined him to omit on no account the uſe of the remedy, till he ſhould be perfectly aſſured of its being totally waſted

away.

away. For this purpoſe he took regularly three bottles more, which having brought him back to the ſtate of eaſe he wiſhed for, he then only took a doſe now and then, but did not leave it off totally for eight months, at the end of which period he had actually every reaſon to believe the whole of the rag was expelled the bladder: happily for him he was not miſtaken in his conjecture; for although it is ſix years ſince he took any of the *ſolvent*, he has had no complaint whatever of the kind.

Beſides the above caſe of Mr. C*****n, I was told of the following, by Mr. Du Fouart, firſt ſurgeon to the Marechal Duke de Biron, and ſurgeon-major of the Hôſpital des Gardes, Françoiſes at Paris.

One of the king's guards had had a gonorrhea, which, for want of timely aſſiſtance to expel the virus, had pro-

duced the following evils:—The matter being retained in the paſſages had formed an abſceſs through the teguments near the ſphincter of the bladder: now, although by proper remedies the virus was totally deſtroyed, yet the urine was always extravaſated through the orifice of the wound, which as it could not be brought to heal, left a *ſinus*, that penetrated the perinæum. This cavity formed a kind of reſervoir for the urine, which trickled down the paſſage every time it was made, and gave riſe at laſt to the concretion of a ſtone, and an inciſion was obliged to be made thro' the perinæum for its extraction; it being about the ſize of a hen's egg: a fiſtula, which the patient will, in all probability, carry to the grave, was the conſequence of the operation. It ſhould, however, be obſerved, that a paſſage is now made to give an exit to the extravaſated urine, which prevents the formation of any new calculus. This man had never

had

had the leaſt indication of the ſtone or gravel, nor can any be diſcern'd at any time in the urine he makes.

It were to be wiſhed that theſe melancholy caſes of ſuffering individuals occurred leſs frequent, or, that the general appearances of good health, added to the ſolicitude of enjoying the pleaſures of life did not diſable them from attending to, and reſiſting thoſe incidents which, if neglected, place them among the moſt wretched of mankind.—It is with conſiderable pain that I relate the following caſe, ſo much the counterpart of the former, and which ſo aptly completes the doctrine of animal lapidification.

I was conſulted about twelve months ago by Mr. *Dixon*, clerk, in the ſecretary of war's office, for a complaint as nearly as can be deſcribed as follows: He had had a ſtone in the bladder about

eight years before that time, for which he was cut, and great pains were taken with the ſcoop to prevent any pieces of calculus from remaining behind, ſo as to form a new concretion: the excruciating pain he had undergone before the operation had a good deal impaired his conſtitution, but nevertheleſs the wound appeared to heal and he was free from any great uneaſineſs for two years, when the cicatrix of the wound burſt open and a fiſtula was the conſequence; through which the urine made its way out of the body: topical remedies were applied to the ſuperficial wound, and it was by thoſe means again healed up; the conſequence of which was, that inſtead of a fiſtula it became a ſinus, where the urine lodged and gave out its ſaburra for a beginning concretion of ſtone; as it could no longer find a paſſage on account of the new cicatrix, for it may juſtly be conceived that the eruption of that part where the in-

ciſion

ciſion had been made into the bladder, took place when the ſurface of the wound broke open, and of courſe there was an intire perforation into the bladder; indeed a leaden probe, I was informed, had been more than once introduced therein through the ſinus—the continued ſupply of earthy matter from the urine, ſoon aſſumed the form of a ſtone, and it might be felt with the finger by preſſing it on that part where the gorget had entered, in operating for the ſtone; all this while the patient was not much alarmed, as he could walk with indifferent eaſe and in moſt reſpects was in tolerable good health—but in this way he did not long remain, for the ſtone encreaſed rapidly in ſize, ſo as to diſtend the part to a conſiderable degree, and at length force its way through the teguments of the muſcles where it formed a bed for itſelf—in this pitiable condition, Mr. Dixon contemplated in ſilence, 'till in fact he could

could not walk but with torture; for the prominence occaſioned by the encreaſed dimenſions of the ſtone, prevented him from putting one leg before the other, and the ſtone had taken its direction chiefly near the ſcrotum. My advice was aſked by him at this period of the diſeaſe, with the circumſtance of the ſtone having burſt open the cicatrix again, in ſhort, ſcarce any water came from him but through this cavity: I examined him with the greateſt attention, from which I ſuſpected the concretion adhered, or that it had extended itſelf in the direction of the fibres of the fleſh, for it was as immoveable as a fixed bone. But for this reaſon I ſhould have immediately adviſed the cutting it out, as there could be no chance of its being diſſolved in any reaſonable time, as it appeared to be larger than a duck's egg, beſides which, there was another unfavourable conſideration, which was, that the urine, though impregnated

impregnated with the ſolvent, could only trickle by a part of the ſtone's ſurface, not entirely ſurround it—however, as ſomething was to be done and the inciſion could not be ſafely ventured on at that time; I propoſed to give him the ſolvent by way of ſtopping the further accretion to the ſtone, as well as to try if its outward coat might not be ſmoothed and his pain thereby abated; with the further hope from the ſame power of the medicine, that the ſtone might be leſſened in dimenſion, and a diſcovery effected of it's being attached or not, to the fleſh which ſurrounded it. Theſe promiſing hopes were fructified to a degree beyond expectation, for in ten or twelve weeks the pain was mitigated in a great degree, and the ſtone might plainly be perceived to move by puſhing contrary ways with the fore fingers of both hands.—When he was aſſured as well as myſelf, that the ſtone was not immoveably fixed in

the

the receſs it had made, he eagerly preſſed me to the operation, by which he might be more ſuddenly rid of a ſource of continued miſery—his complexion and emaciated condition convinced me that his habit was in a very indifferent ſtate, and therefore I directed him to live better than he had done, to take a glaſs or two of wine with his dinner, and a doſe of tincture of bark twice a day for a month; at the end of which time I would, if he deſired it, perform the operation, there being no proſpect of ſpeedily diſſolving the ſtone by the medicine, nor of his long purſuing his employment, about which he was extremely anxious.—During this month in which he had lived more generouſly than before, he ſeemed in better ſpirits, and a day was fixed for the operation, on which he was fervently bent.—I had, by his knowledge and conſent, appointed for aſſiſtant, a ſurgeon with whom I had formerly diſſected, and

whoſe

whoſe opinion I held in great eſteem; I had the ſatisfaction of finding Mr. C—— agreed with me about the ſafety of the operation, and I accordingly ſet about it, when I extracted a ſtone of an exceeding hard and denſe texture, weighing three ounces two drams *avoirdupois*; its form in a great meaſure reſembled a longitudinal ſection of a pincuſhion, with one of the horns running towards the anus, and the other up the ſinus into the bladder; this form obliged me to enlarge the orifice I had firſt made for its extraction—a ſuture ſecured the only arterial branch that was divided and all appeared favourable; I viſited him for three weeks with every reaſon to expect his recovery. At this time I was ſeized with a tertian fever and under the neceſſity of removing into a dry air in the country, during which time, though attended by two ſurgeons, he fell into a low exhauſted way and died—the wound which was originally

about

about three inches in length had healed to about two, but had never yielded any well digeſted pus throughout, ſo that I apprehend the attenuated ſtate of the blood and juices had occaſioned his death. I have deſired Mr. Morſe (in whoſe poſeſſion the ſtone is) to allow me to take an exact drawing of it, as it may be deemed a great curioſity.

Mr. Jamiſon conſulted me in a caſe of the gravel, which he had had for a conſiderable time to an extreme degree, inſomuch that he was no longer able to walk or ride with the leaſt eaſe, and complained of exquiſite pain in his loins, and in the neck of the bladder, with almoſt an entire ſtoppage in making water. Although I was convinced his caſe was gravel only, I gave him no other medicine than the ſolvent, with a view to check the diſpoſition of the urine to run into thoſe concretions. In a ſhort time he began to void prodigi-

ous

gious quantities of globular pieces of gravel, ſcarce ever urining without being able to collect half a tea-ſpoonful. The pain at the neck of the bladder abated, in proportion as the gravel was voided; but he never ceaſed to complain of a weakneſs and uneaſy ſenſation about the loins and kidneys. He continued free from pain at the neck of the bladder, and all other but theſe above mentioned, for the ſpace of about four months, when the gravel began to form again, occaſioning the ſame complaints as at firſt. This ſecond attack was treated in every reſpect like the firſt, during which, he paſſed ſuch amazing quantities of looſe red pieces of gravel, as would aſtoniſh the moſt credulous. The cauſe of ſuch an haſty and abundant collection of gravel, I conſidered as deſerving particular attention. I found it to be almoſt univerſally in one coloured ſpherical piece, and this gave me reaſon to ſuſpect that each ſe-

parate

parate globe might have a nucleus different from the mere junction of the primary particles. I was conscious that an oppressive weakness of the loins augmented the pain of which he complained, for he had this, when the gravel was supposed to have all passed; and that although he had never made what might have been called bloody urine, yet a sediment was often observed at the bottom of it, which had every appearance of fine blood globules, which had now lost their bright colour by lying in the urine. I therefore began to consider, that altho' in a natural state of the kidneys, the blood globules are prevented from passing the secretory glands, yet, should any of those glands be extraordinarily relaxed, some of the fine globules might pass through them with the urine and instantly become nuclei, for those small grains of stone. I was the more inclined to this belief by considering that the reticular gland or membrane

brane of the eye, when relaxed by cold, a blow, or other injury, often ſuffers an extravaſation of the finer blood globules, which gives riſe to the name *blood-ſhotten eye*. To ſatisfy myſelf, however, of the rationality of my conjectures, I carefully divided ſeveral of the round pieces of gravel, after which, with a good microſcope, I was able to diſtinguiſh a cavity in the center of them, with an appearance that left me not a ſhadow of doubt, that globules of blood had been the nidi, or rather nuclei of the concretions.——*Frêre Côme*, the noted litheotomiſt of Paris, has made the ſame remark;—and indeed it would have been difficult in any other manner to have accounted for the myriads of pieces of gravel that would form in ſo ſhort a time.

The concluſion naturally to be deduced from this is, that if in place of ſo many globules of blood, detached at once,

they had all been collected in one mass or drop, instead of the formation of so many grains of sand, there would have been, perhaps, a single stone, which must have increased in a considerable degree, since it would have been supplied from that quantity of particles which were necessarily distributed to so many separate nuclei.

SECT. V.

OF THE STONE IN CHILDREN.

FROM the early age in which many children have been attacked with this disease, some authors have been induced to pronounce it hereditary; but after the former evidence to the contrary it cannot be said to be the case.

Authors who have alledged the cause of the stone to be a too free use of malt liquors,

liquors, and thoſe who imputed it to an error of the non-naturals, were obliged to pronounce the ſtone in children hereditary, otherwiſe they would have contradicted themſelves; becauſe ſtones have been cut out of the bladder of children, who had but juſt been weaned from the breaſt. Children, in this ſtate, being attacked with the ſtone, are undeniable proofs of thoſe primary particles of ſtone being inſeparable from every fluid we drink.—When we conſider the many glands the milk (with which the child is fed) has been ſtrained through, in the mother or nurſe, ere it reaches the child's mouth, and the many different fermentations and depurations it has undergone, and yet find it to be the vehicle of earth, what can we expect from the filtrations and diſtillations of water; it is really wonderful, but it is equally true, that a ſtone as large as an almond has been extracted from a child of two years of age, who had lived en-

tirely on a milk diet.—The concretion in ſuch young ſubjects muſt be conſiderably expedited by their ſupine poſition. The bladder being not ſo likely to empty itſelf in an horizontal, as in an erect poſture. If the bladder already contain ſand or earth, nothing is ſo likely to render the formation of the ſtone rapid, as an inactive life.

SECT. VI.

OF THE SYMPTOMS OF THE STONE.

It has already been ſhewn, that the gravel and ſtone are the ſame diſeaſe in a different degree, conſequently, what is only the gravel now, may, in a ſhort time, be the ſtone. The only line of diſcrimination between them is, that while the collected particles are ſtill ſmall enough to paſs from the kidneys to the bladder, and from the bladder through

through the penis, without preternaturally diſtending the ureters or urethra, the diſeaſe may be called the gravel; but as ſoon as the calculi have acquired a ſize too large to be admitted through thoſe tubes naturally, the caſe can only properly be called the ſtone. It can no longer be called gravel, when the piece or pieces of calculi are to be felt by introducing the *ſound* into the bladder, though it does not follow that the ſtone ſhall always be found by that inſtrument; for it may be ſo ſmall as that its reſiſtance to it ſhall not be felt by the niceſt finger. It may alſo, by the particular ſtructure of the neck of the bladder in ſome perſons, lie ſo concealed, as to elude the ſearch of the moſt experienced operator; hence the reaſon why, at ſome times, it may be felt by the catheter, at other times not: however, very often the ſounding will be likely to afford ſatisfaction, and may, in moſt caſes, be ſaid to be neceſſary, except when the

ſtone is of ſuch a ſize, and the ſymptoms ſo indicative, as to leave no room to doubt of the diſorder.

It has been ſaid, that in very rare caſes, bloody water may be occaſioned by the gravel only; in *this* diſeaſe, however, it will be a leading ſymptom, attending a too violent motion of the body, as riding on horſeback, or in a coach on rough roads, and in uneaſy carriages.—Too much walking, or any ſudden diſtortion of the body will bring it on, and whenever this happens, the patient may certainly conclude that he is unfit for exerciſe, but of the mildeſt kind; and although the laceration may not be diſcovered during the motion, yet it is unſafe. Ulcers generally follow repeated excoriations of the internal coat of the kidneys and bladder. The cauſe of an ulcer ſhould more particularly be avoided, as it renders the diſorder much more difficult of cure; and

if it happens in a perſon of a bad habit of body, it generally drags him to the grave; the ſtone ſerving to augment the dire effects by its continued friction and irritation againſt the defenceleſs, corroded veſſels. By its ſtimulus alſo, about the neck and ſphincter of the bladder, it will occaſion frequent irritations, and calls to make water in ſmall quantities; and as it advances in ſize, a pain will be felt in the neck of the bladder the moment the urine is made, and about the end of making. By a kind of ſympathy a pain is felt alſo at the *glans penis* or nut of the yard, the moment the urine is made; and if the ſtone be rough, the pain will be exquiſite, by the contraction of the neck of the bladder. If this contraction round it be ſudden in the emiſſion of the urine, there will be alſo felt an uneaſy ſenſation in the *anus*, occaſioned by the contiguity of the rectum to the neck of the bladder, and a teneſmus will enſue. The ſtone will

often be carried to the neck of the bladder by the efflux of the urine, and ſuddenly ſtop its courſe, 'till by a change of poſture of the body, or by the natural contractile power of the ligaments of the bladder, it be drawn back.—If, after the firſt flow of urine, there ſhould be a ſecond urgency to make it by drops, the pain will be immoderate, and of longer continuance, and the whole paſſage will be ſo heated and inflamed, that the ſenſation of the patient is deſcribed in no better way than by imagining the points of ſwords, or other pricking and ſharp inſtruments are forcing their way through it. In general, it will be found that the urine may be made eaſier lying on the back, or on the ſide, and on any curvature of the body, than in an erect poſture.—When the ſtone has acquired a conſiderable ſize, it will be ſenſibly felt by turning haſtily in bed, from ſide to ſide, and its gravity will occaſion

occaſion a pain in that part neareſt the os pubis, and even the ſcrotum and teſticles themſelves.

There are no pathognomonic ſigns of the ſtone, but theſe are the common ones of it in the bladder; ſome, or all of which, attend the diſeaſe in its different ſtages; but it is plain, that if the ſtone be but ſmall and ſmooth withal, the ſymptoms and pain will be milder than if large and rough.—If the ſtone attack a perſon of a feveriſh habit, he will be frequently liable to violent fits of it, attended with ſuch ſtrangurious pain as will occaſion an almoſt inceſſant deſire to make water, and that by drops only. It will alſo, bring on raging thirſt, and even delirium. Theſe are ſymptoms that muſt be palliated by balſamics, warm bath, and if the habit be plethoric, *venæ ſection*, and repeated as occaſion may require:

require: cooling laxatives are alſo proper; as manna and oil, with barley-water and emulſions of almonds. A perſon of a warm temperature ſhould abſtain from all inflammatory things, keep his body rather looſe than otherwiſe, and particularly avoid violent exerciſe of every kind.

If the caſe be that of the ſtone in both bladder and kidneys, he will, beſides the foregoing ſymptoms, be liable to the following ones, which are peculiar to the diſeaſe when in the kidneys; viz. a dull, obtuſe pain in the region of the loins where the kidneys are attached, together with a ſenſe of heat and uneaſineſs after motion; — an uneaſy weight and preſſure in the part after a full meal, which will often occaſion a nauſea, and even a vomiting; in general, the patient will conceive an averſion to exerciſe from the uneaſineſs

that

that accompanies it.—The ſtone when ſeated in the kidneys, (as well as in the bladder,) is liable to lacerate the ſmaller blood veſſels, and occaſion a diſcoloured or bloody water, which, if made freſh after the extravaſation, will be florid; but if it be retained ſome time in the body, it will acquire, by means of the urine, the colour of coffee-grounds. — Inflammation will alſo be frequently excited in the kidneys, which will impede the ſecretion of the urine; and if it happen to *both* at one time, will be dangerous.

The wiſdom of providence is peculiarly conſpicuous in the proviſion made againſt the conſequences of this dreadful diſeaſe, by furniſhing the human body with two kidneys; ſince it is now proved (by a ſubject I diſſected at Mr. Clarke's) that one would be ſufficient to ſecrete the urine from the blood.

Though

Though the ſtone in the kidneys may be more difficult of cure, from its not being ſurrounded with the urine, yet it is not ſo immediately dangerous; ſince a kidney has been found entirely blocked up with the ſtone, inſomuch that, when taken out, its configuration was like the trunk of a tree, with the branches ſevered a little diſtance from it: this ſhape it had taken from the great diſtenſion the pelvis of the kidney had ſuſtained during the growth of the ſtone.

CHAP.

CHAP. IV.

OF THE DIFFERENT DEGREE OF DENSITY IN STONES.

IT has been ſhewn in the inſtances of ſections of ſtones, that they are not only liable to be very different in their textures and colours, but that the various laminæ of the ſame ſtone will be of different degrees of coheſion.—This accounts for the irregularity of the diſcharge of earth during the operation of the ſolvent, as the *outſide* laminæ may be leſs firm and coheſive, conſequently, the ſolution or ſeparation of its parts will be more quickly brought about.

The

The *ſecond* may be denſer, and therefore it will not be operated upon ſo ſoon; the *third* may again be like the firſt, and ſo on. This being the caſe, it is worthy our conſideration what is the occaſion of this change in the habit, ſo as to effect the formation of a *harder* or *looſer* compacted ſtone. According to our ſucceſs herein, we may be able to lay down a rule or regimen for thoſe who are either under the influence of a *preſent* diſeaſe, or are fearful of an attack.

I believe no one who has read the preceding part of this treatiſe, will be unconvinced that the ſame earthy particles are conveyed to the urine of every perſon whatever, in an equal degree, to the quantity of fluid received in the body.

To account, therefore, for the difference in the colour and denſity of the ſame

ſame ſtone, it behoves us to conſider, that there are *two* kinds of primary particles; the one ſpherical or globular, the other of an oblong figure, inclining to a flat: now, as it is highly probable alſo, that the ſmalleſt particles ſeen by the very beſt microſcopes, are ſtill manifold aggregates of thoſe ſimple particles, we can do no more than judge of the *firſt* figure by the ſhape they aſſume in the ſtate they are firſt viſible. The harder ſtones, as cryſtal, &c. are found to be made of fine *ſtriæ* or *lamellæ*, nearly equal to each other: when, therefore, theſe lamellæ meet or enter into contact (from what cauſe ſo ever) in a ſufficient quantity, the conformity of their ſeparate figures determines their arrangement equally in the whole, and leaves the homogeneous body tranſparent, by reaſon of its admitting a free paſſage to the rays of light equally every way.

Thus

Thus we may account for ſtones of the earth being opaque and porous, in proportion as their component particles approach nearer to a globular figure. If a ſtone be made up of both kinds of particles, it will be of a mixed nature, neither tranſparent nor fully opaque. Stones of the human body, however, never approach to a perfect tranſparency, owing to the quantity of fixed ſalt contained in them; for ſalt tends to increaſe opacity, unleſs it has undergone a heat ſufficient to vitrify it. The particles of all kinds of ſand, when viewed through a microſcope, appear pellucid; ſo that the colour of human ſtones being lighter or darker, ſeems to depend upon the quantity of ammoniacal ſalt contained in the urine, which ſerves to fill up the interſtices between each lamellæ. The cloſer and firmer the coheſion of thoſe particles is, the lighter is the colour of the ſtone, and *vice verſa*.

If

If we conſider the nature of light, and the manner in which the rays are refracted by ſaline bodies, conformable to Sir Iſaac Newton's experiments, we may eaſily enough account for the variety of colour of ſtones, according as they abound more or leſs with ſalt: hence the reaſon why a ſtone, or one or more laminæ of a ſtone, are different in colour from the reſt. It is not however to be underſtood, that the ſaline part of the ſtone has no other than the *mediate* property of giving tranſparency or opacity to ſtones, according as it more or leſs abounds: it abſorbs air, either fixed or rarefied, more than all other bodies.—Now if a ſtone contains a greater quantity of fixed air, its particles will be kept farther aſunder; conſequently, the rays of light cannot paſs freely out of one particle into the other, but are in part refracted by the air, which is a denſer medium than light itſelf. From the ſame cauſe the moſt tranſparent and

brilliant glaſs becomes opaque when reduced to powder, by the component particles of it being ſeparated from each other, and made to admit the air between them, which cannot be excluded again but by the operation of fire.

To proſecute this matter to the utmoſt extent, would be to run through the different doctrines of light and air, and conſequently ſwell this tract beyond its intended compaſs: however, as I have made ſeveral experiments on ſtones, the reſult of which may tend to throw ſome new light upon the nature of air, gravitation, and attraction; I may be prompted hereafter to publiſh them ſeparately. I ſhall content myſelf for the preſent, with collecting from theſe experiments, what regimen will be moſt compatible for thoſe who take the ſolvent, with a view of diſſolving the ſtone. This requires a two-fold conſideration, the firſt;

what

what is conſiſtent with the diſeaſe itſelf, the next, what is leaſt likely to fruſtrate the operation of the medicine intended for its cure.

In order to be more particularly ſucceſsful herein, I made a number of experiments of the nature of thoſe in chapter vii. with a mixture of ſolvent and different juices of animal and vegetable ſubſtances, kept in a proper degree of heat, in which were infuſed different pieces of calculus of equal weight and of an uniform conſiſtence throughout, which was cut from a boy of eight years of age. This was made choice of, as preferable to one taken from a man, the laminæ of which might differ in coheſion from the variety in his manner of living.

It may be aſked in this place, how it comes to paſs that ſince the urine is in-

ceſſantly charged with the ſtony particles, the concretion goes on ſo ſlow at one time and ſo rapid at others.—To which I anſwer, that a variety of circumſtances may concur in the one perſon, or at one time, to bring about an haſty accumulation, and which, in others, may only operate in part.—Firſt, for inſtance, ſhould a ſtone be already formed in the body, and the urine be retained a very conſiderable time, there is no doubt but the earthy corpuſcules will be more generally attracted by the ſtone.

Another cauſe of the various degrees of growth of ſtone may be deduced from the following obſervation. Altho' there is at all times an aptitude in the primary particles to enter into coheſion, yet there muſt be an interpoſing medium, which medium is proved to be a ſaline ſubſtance; now that this ſaline

ſubſtance is to be found in greater abundance at one time in the urine, than at another, is a fact, and therefore the corpuſcles of ſtone may be more or leſs furniſhed with this neceſſary medium according to the ſtate of the conſtitution.

I have remarked, that ſcorbutic habits generate ſtones quicker than others. This may ſuggeſt to ſome a plauſible reaſon for living in ſuch a manner as to prevent the fluids from affording this animal ſalt in any abundance; but when we conſider that a certain quantity of it is neceſſary to the due concoction of the fluids, we might, by following the dictates of this reaſoning in too ſcrupulous a manner, deſtroy the action of the fluids upon the ſolids, and bring on leucophlegmatias, dropſies, and other diſorders more immediately alarming in their natures.

Laſtly, ſince the primary particles of ſtone are different in their figures, ſhould the firſt junction of them be of the nature of the lamellæ before-mentioned, the nucleus, or firſt foundation, will be of the harder kind throughout that lamina; as thoſe particles have, no doubt, a greater affinity to each other than to other particles.—As ſoon then as one lamina is compleated, the concretion is at liberty to begin a new lamina, either of the ſame nature of particles, or of thoſe approaching to a ſpherical figure according to chance. If of the latter, this ſecond lamina will be leſs compact and denſe, conſequently more eaſy of ſolution;—ſo that each lamina muſt preſerve an uniformity of coheſion and texture, although the lamina, may be different from each other. If it were to happen that an intire ſtone was made up of thoſe former particles, it would be hard indeed, and in its nature

nature dreadful.—This, however, is ſcarce likely ever to happen in the human body, from the continued motion of its ſeveral parts:—but in ſtones of the earth it is different, as no motion there interrupts the natural and ſpecific force of attraction that one particle exerciſes towards another of the ſame intrinſic property.

CHAP. V.

SECT. I.

THE METHODS HITHERTO PURSUED IN ENDEAVOURING TO CURE THE STONE.

THERE is no doubt but the diſorder we are treating of had its origin with our firſt fathers, ſince no climate nor manner of living can grant us an immunity from it.—As ſoon therefore, as its nature became in part known, by means of that prying and reſtleſs curioſity ingrafted in man, it was looked upon as pre-ternatural, and owing to ſome extraneous body having found its way into the habit. This opinion was ſeemingly corroborated from there having been found foreign ſubſtances in the

heart

heart of trees, ſtones, ſhells, &c. ſo that without conſidering fully the nature of its compoſition and accretion, expedients were formed for relieving the unhappy creatures afflicted therewith.—Pharmacy was but little known in thoſe days, ſurgery and operations were their only reſource, theſe being of very early date.—We have, nevertheleſs, no account of the operation for the ſtone 'till the time of Celſus, though it is more than probable lithotomy was performed long before.

However imperfect his method might be, it was purſued 'till after the time of Johannes de Romanis, when no doubt the ill ſucceſs and fatal conſequences attending it, ſuggeſted the idea of improvement.

That ſcarce one in twenty eſcaped the operation is evident, from the forms and ceremonies obſerved before the knife

was

was applied; insomuch that the miserable victim was considered as devoted. The work was, therefore, only justified upon this ground, that his torments were worse than present death; for in those days the patient derived not the least consolation from palliative remedies. As the mind became more and more enlarged and expanded, every means were devised for lessening the fatality of the operation, and new instruments and new methods of applying them were invented, 'till, by the several improvements and the dexterity of the operators, it is brought to a degree of perfection, insomuch, that at this day, lithotomy is not apparently susceptible of further improvement.

Now, though this was the real case, and that some wonderfully survived the knife, yet many were rejected as improper subjects for its decision, since a due age, habit, &c. were requisite to derive from

from it any hope of ſucceſs. Humanity, therefore, dictated the neceſſity of ſeeking relief in medicine for thoſe who were by no means likely to meet with it from the inſtrument; accordingly we find chymiſts and philoſophers at work in analyſing the human calculus. In its decompoſition it was found to yield a conſiderable quantity of fixed air, which, from the reſult of ſome of their experiments, was deemed the principal cement of the ſtone. On this account lime-water being judged moſt likely to deprive it of that part of its compoſition, was, in conſequence, recommended by the firſt and ableſt phyſicians. Soap, alſo, as an univerſal diſſolver of animal ſubſtances, was called into aid, and, by ſome, was preſcribed and taken with lime-water, but with what ſucceſs the following inſtances will demonſtrate.

I ſhall adduce two of the caſes quoted by an eminent phyſician, in favour of their

their operation and effects, and leave the judicious reader to form his opinion from the conſequences produced.

It may be urged that, granting theſe caſes do not convey any very favourable idea of their power, yet they are inſtances of their not being ſo noxious to the conſtitution as they are reported, to which I anſwer, that the conſtitutions of men differ very materially; that to ſome you may adminiſter the moſt draſtic medicines without injury, while the lives of others would be endangered by them; but theſe examples of the former kind are by no means ſufficient to overturn abſolute eſtabliſhed facts.

That ſoap is a great deſtroyer of animal ſubſtance is evident from the bloated, ſallow countenance; offenſive, cadaverous ſmell of the breath, and bad digeſtion of thoſe who are under a courſe of it, and from the hiſtory of the plague

of

of London; as ſoap-boilers, waſher-women, and all thoſe who had commerce with ſoap, were found to die ſooner, and with more viſible marks of putridity than others. With them, all alexipharmics and antiputreſcents were thrown away; none of them ſcarce eſcaping. Every tryal ſhews that ſoap has this deſtructive tendency, and that it breaks down the *craſis* of the blood; for which reaſon, it is abſolutely forbid in all diſeaſes tending to putridity. To demonſtrate this more ſufficiently, let a piece of fleſh, ſuch as beef, or mutton, (ever ſo newly killed) be immerged, or ſuſpended by a thread in a bottle half full of water, in which a ſmall quantity of ſoap has been diſſolved, and let the bottle be placed in a warm ſituation; in fifteen hours, or, if the weather be hot, in leſs time, it will begin to throw up air bubbles; and in fifteen hours more, will emit a putrid ſtench, and bear all the marks of approaching corruption:

tion: if the mixture be kept by the thermometer, of the heat of the blood, the corruption will take place much ſooner.

It is not uncommon to meet with a perſon who has taken ſoap a long time, but as the caſes of perſons in a conſpicuous ſituation of life, are wont to make a greater impreſſion on the minds of the public than thoſe of others, I have ſelected the two following from them.

THE EFFECTS OF SOAP AND LIME-WATER IN THE CASE OF HORACE WALPOLE, ESQ. AFTERWARDS LORD WALPOLE.

His lordſhip was taken ſuddenly ill when at Hampton Court. His caſe being by his phyſicians miſtaken at firſt for the cholic, he was treated accordingly; but in a little time a ſtone was obſerved to paſs through the left ure-

ter

ter into the bladder, which for the preſent, gave him perfect eaſe.—Some time after, by turpentine glyſters, and internal lubricating medicines, it was evacuated through the urethra, being about the ſize of a barley-corn—Notwithſtanding, he was frequently afterwards troubled with gravelly complaints, for which, he took cream of tartar whey, and great quantities of mucilages, which, though they kept him tolerably eaſy for two years, were found, nevertheleſs, to increaſe the accumulation of the ſtone: for at the end of that period being in the houſe of a friend, he had a ſudden and urgent inclination to make water, when he was greatly ſurpriſed to find that the baſon contained a pint of almoſt clear blood, which he made with the greateſt pain he had ever felt. This convinced him of the inefficacy of his former regimen, and he reſolved to be ſounded; when, the ſtone being found, he was immediately put under a courſe

of

of ſoap.—Accordingly, (July 1748) he began, and took an ounce of it every day, with three pints of lime-water, which he continued to do 'till the beginning of the year 1757; from which it appears, that his lordſhip took no leſs than one hundred and eighty pounds weight of ſoap, and twelve hundred gallons of lime-water! a quantity ſo prodigious as might ſtagger the faith of any one, if not authenticated by his own hand writing, and further corroborated by the teſtimony of Sir John Pringle, Bart. F.R.S. in the Philoſophical Tranſactions.

With what little ſucceſs his lordſhip took theſe nauſeating medicines for ſo long a time, may be learned from the continuation of his caſe. It may reaſonably be preſumed, that his lordſhip could not have been prevailed upon to continue in that diſagreeable courſe, if he had not believed theſe medicines were the only ones which could be of

advantage

advantage to him, and if he had not been flattered to the laſt, with hopes of a cure. It is from this we find that he was elated with joy whenever he could bear the motion of his own carriage, which however, he could do but very ſeldom, although of the eaſieſt conſtruction. He was obliged to have a litter made for the purpoſe of carrying him to town from his ſeat at Wolterton, which journey took him up five days, though but of one hundred miles. He was all this time debarred the uſe of his ordinary food, and every other enjoyment of life, in order to aſſiſt, as much as poſſible, the power of the medicines.—He died, however, in that year, without any particular cauſe being aſſigned by his phyſician and apothecary, though they both gave their opinion that he did not die of the ſtone.—Mr. Ranby and Mr. Hawkins were preſent at the opening of him, and found in the bladder, *three* ſtones; two were about the ſize of a

ſpaniſh nut-kernel, the third ſmaller, which ſeemed to be a part broken off one end of the largeſt ſtone: they were deſcribed to be ſmooth, and of a poliſh as fine as a boy's marble.

Although the above caſe was looked upon as favourable to the effect of ſoap, yet I hope the reader will agree with me in the following particulars: that there was but little reaſon to ſuppoſe the ſtones were waſting, as there was no diſcharge of ſand nor fragments of ſtone; and although his lordſhip might have intervals of eaſe, it was nothing more than could be expected from his low, temperate diet, and abſtaining from much motion: beſides, it muſt appear very ſtrange that the ſtones ſhould have been of that ſize at his death, ſince he began to take the ſoap and lime-water ſo ſoon after he found any ſymptoms of the diſeaſe: neither can it, with the leaſt colour of reaſon, be ſuppoſed that

the accumulation could have reached ſo far before taking the ſoap and lime-water, without his lordſhip being appriſed of it by ſome leading ſymptoms: whence it therefore follows of courſe, that, in ſpite of the enormous quantity of thoſe reputed lithontriptics he took, the ſtones continued to augment.

It was remarked by thoſe who adviſed his lordſhip to take the ſoap, &c. that the ſmoothneſs of the ſtone's ſurface muſt have been occaſioned by the effect of the medicine; this, in my opinion, is not at all probable; it might with more propriety, have been imputed to the friction of the ſtones one againſt another, which we know will produce the like effect.

Although the caſe above related will, without doubt, be ſufficient to convince the world of the inefficacy at leaſt of ſoap and lime-water in the ſtone, yet, as

that of Mr. Hay's is ſtill more remarkable, from his having taken it in larger doſes, I cannot omit quoting it; nor muſt I forget to mention, that the very writer of it had then an opinion of ſoap and lime-water as lithontriptics.

In the following caſe mention will be made of a Mrs. Stevens's medicine, it therefore cannot be thought improper in this place, to acquaint the reader how it came to be ſo much known.

That the world in general, and the legiſlature in particular, thought a diſcovery for the cure of the ſtone of the higheſt importance to mankind, is evidenced, in the parliament voting Mrs. Stevens, in the year 1739, 5000l. for diſcloſing the preparation of her medicines againſt this formidable diſeaſe.—This was done in conſequence of her petition to the Houſe of Commons for that purpoſe.

But, although the virtue of the ingredients of which theſe medicines were compoſed, ſhould be ſuch as would juſtify the account given of them, yet the manner of taking them, in quantities ſo large as almoſt to fill the ſtomach, together with the regimen to be obſerved in the adminiſtration, were ſuch as rendered them of very little uſe; as but few perſons were able to take them, from their prodigious nauſeating quality; and thoſe who did take them, indicated the utmoſt reluctance.

I have by no means drawn a more unpleaſing picture of theſe reputed lithontriptics than they require. The facts are well known to all thoſe acquainted with their nature; and too well by ſuch as have experienced their effects, which circumſtances have been the ſole means of bringing them into diſuſe.—The deſcription of their virtues is, in a

meaſure, accidentally involved in the ſubſequent caſe of Mr. Hay, otherwiſe I had paſſed it over in ſilence.

THE CASE OF WILLIAM HAY, ESQ. BEING AN EXTRACT OF A LETTER FROM DR. RUSSEL, OF BRIGHTHELMSTONE, TO HENRY PELHAM, ESQ.

"*November* 25th, 1755.

"MR. HAY took three ounces of Mrs. Stevens's medicine in a ſolid form every day for five years, never leaving off, except for a few days, to obſerve the effect of the omiſſion.

"About five years ago he left off the uſe of theſe medicines, and afterwards purſued, with the ſame conſtancy, caſtile ſoap and lime-water, mixed with milk. At firſt he took three ounces every day; but about two years before his death, he reduced the quantity to one ounce.

Under this method he grew ſo eaſy, that riding in a coach, or walking, ſeemed to give him but little pain. This inclined him to get on horſeback, which he had not done for eleven years: but he found an inconvenience from it the firſt time, and after the ſecond time (which was a little before his laſt illneſs) he was heard to complain that his old diſtemper was likely to return again as before. He is reported to have died apoplectic, having neglected to uſe the neceſſary evacuations.

Two days after his death, Dr. Ruſſel was deſired to attend the ſurgeon on taking the ſtone out of the bladder, which was empty of urine, and grown quite callous from the ſtone's rubbing againſt it.

The ſtone weighed three drachms, two ſcruples, and eight grains; was flattiſh and oval; of a ſhining cheſnut

colour, perfectly poliſhed and ſmooth to the touch in every part: the outward laminæ were ſeparated, one of which was thick and friable, the other ſtill thicker, and of a brown loam colour, as well as the ſtone to which they adhered; and was covered over with very rough aſperities.

From this ſhort account of Mr. Hay's caſe, the doctor obſerved that Mrs. Stevens's medicines, or ſoap and lime-water, may give relief to patients, and make them paſs through life eaſier, even although they ſhould have little or no effect in diſſolving the ſtones; and as Mr. Hay, as well as the biſhop of Landaff, continued to diſcharge red gravel in ſpherical pieces, he remarked, that that gravel ſeemed to be what is generated in the kidneys, where conſequently the lime-water, &c. have no power; tho' he thinks they will hinder the gravel, when

when fallen down into the bladder, from uniting or growing into a ſtone.

From the above declarations, it appears, that the doctor began to doubt their power in diſſolving human calculi, as they certainly had the faireſt trial given them in the above caſes, as well as in that of the biſhop, and many others.

The eaſe which Mr. Hay received in the latter part of his days, does not ſeem to have ariſen from the effects of the medicines, but rather to the bladder having become callous by the ſtone's friction againſt its ſides, and conſequently it was leſs ſuſceptible of pain.

CHAP. VI.

SECT. I.

OF A REAL CURE FOR THE STONE BY A NEWLY DISCOVERED SPECIFIC SOLVENT.

ALL thoſe who have ſo peremptorily aſſerted the ſtone incurable, can have little reflected on its conſtituent principles. They muſt have looked upon it as of one uncompounded nature, immutable as its primary particles: yet they agree, that it is poſſible to prevent the urine from running into further concretions, which is, in fact contradicting themſelves, and allowing it curable, though in a ſlow degree.

To

To admit that a medicine ſhould prevent the urine from giving out thoſe principles which form a ſtone, and yet not act upon the ſtone itſelf, is not intelligible to me; however, if a medicine ſhall, as an eminent phyſician obſerves, by deſtroying the petrifying quality of the urine, hinder any new accretions to the calculus, it muſt neceſſarily, in time, have its ſurface waſhed down, and worn away by the urine (now rendered more ſimple) and the coats of the bladder acting upon it on all its ſides;

Quid magis eſt ſaxo durum? quid mollius unda?
Dura tamen molli ſaxa cavantur aqua.——Ovid.

The primary particles of earth, ſo often mentioned as attracting each other in the formation of a ſtone, never fail to take up certain other relative principles as a *medium*, not only to aſſiſt in their junction and coheſion, but as neceſſary to fill up the interſtices formed by the

appoſition

appoſition of thoſe irregular figured particles;—without which medium they certainly could not form a concrete ſubſtance in any degree tenacious. Now if a medicine is formed, which, by its affinity with any one of thoſe principles, deprives the ſtone of that principle, will it not in part deſtroy the tenacity of that ſtone and render it liable to fall into powder, or moulder away by the common attrition of the urine? And is not that medicine as perfect a diſſolver of the ſtone as *aqua fortis*, or Glauber's ſpirits of nitre, ſince they do no more than deſtroy the tenacity of it, without being able to change the nature of its component primary atoms.

That there is a ſpecific property in ſeveral fluids, is what no ſenſible man will deny. It is what has been always underſtood by the term affinity, and is manifeſted in the ſimple experiment of diſſolving a lump of ſugar; the moſt natural

natural menſtruum of which is water: for, if alcohol or brandy (though ſo ſtrong in compariſon with water) be poured upon the ſugar it will not ſo readily diſſolve it. Again; reſins are ſoluble in alcohol, but not in water;—and ſo on of many other ſpecifical menſtruums, well known to thoſe who are in the leaſt acquainted with that part of chymiſtry which relates to the doctrine and laws of affinity and abſorption.

That there is alſo a property in ſome medicines of operating locally, or, as it were electively on part of the body, or on one of the fluids of the body, without affecting the whole, the greateſt caviller muſt allow; and every day's experience furniſhes facts for its confirmation:—witneſs, the effects of cantharides and mercury, of which mention has been made heretofore.

It

It being allowed then that there is a ſpecific power and local effect in ſeveral medicines, it only remains to ſhew how far theſe operations take place in the adminiſtration of this ſolvent, ſo as to anſwer the end of diſuniting the principles of the ſtone, and thereby exonerating the body from that cruel diſeaſe.

The chymical elements or principles, to which all bodies may be ultimately reduced, are theſe five: 1ſt, *Water*, or *Phlegm*: 2dly, *Air*, which eſcapes unſeen in great quantities from all of them, ſo as to conſtitute half the ſubſtance of ſome of them: 3dly, *Oil*. 4thly, *Salt*, which is either *volatile* or *fixed*. 5thly, *Earth*.

The natural elements being thus blended together in the formation of a body endued with tenacity, of what conſequence is it whether, in order to decompoſe and deſtroy its adheſion, we deprive

deprive it of either the water, or air, the oil, or the ſalt; ſince it will be equally diſunited in excluding from it any one of its principles or elements.

Although it has been ſaid that *earth* may be converted into *air*, conformable to a learned philoſopher's experiments, no doubt by that it will be underſtood, that the earth is reſolved into its primary particles, which primary particles may be, and in fact are, light enough to be borne up by the air.

That this is the caſe is demonſtrable by a chymical proceſs, where a quantity of earth may be collected from the air: but although by the help of chymiſtry we can reſolve bodies into their priſtine, conſtituent principles, nature has here put a *ne plus ultra* upon our curioſity; otherwiſe ſhould we be able to alter or annihilate the firſt principles of bodies, we ſhould undoubtedly create great

great confuſion in the world, and order of things.

It ſhould therefore ſeem plain, that although in the ſtrict philoſophical ſenſe of the word, there is not in nature a diſſolvent, yet, whatever decompoſes the conſtituent parts of a ſolid body, or reſolves it into its primary particles or atoms, has a right to that title, according to the acceptation of the word.—Salt is not only a predominating principle of the ſtone, it is alſo the cement of other compoſitions, as glaſs, mortar, &c. Now we all know, that if the lime with which the mortar is made, were to be deprived of its ſalt, it will no longer be fit for the purpoſes of building; for although it ſhould be mixed with ſand, and tempered as in the uſual way, it will never become firm, but continue a calx, which, if uſed to build with, would expoſe the work to ſudden decay. The adheſive

adhesive property may nevertheless, be given to it again by the addition of a *fixed* salt: hence the reason why mortar made with sea-water is more durable than any other. That the specific solvent operates upon more than one of the principles of the stone, is probable from the hasty solutions of some stones by its use. Indeed, the diversity in the quantity of the several principles which compose the stone, will be a cause of its operation varying as much as the difference in the nature of the primary particles themselves.

This is one of the most material circumstances in the consideration of the cure of this disease, and to which one's attention is forcibly arrested, under a hope that if the exact proportions of the component parts of a stone could be ascertained, it would enable one to apportion the several ingredients in the composition of the remedy, so as to

meet with leſs reſiſtance to its power in its operation. With this intereſting regard I have made many experiments on calculi of various natures and textures, and I find an eſſential difference in the arrangement of the ſeveral principles which compoſe the whole: I have alſo, where opportunities afforded, compared thoſe differences to the urine of different perſons, from which I am perſuaded that there is, in this reſpect, an exact conformity in ſtones, to the urine in which they are generated, for where the ammoniacal or volatile ſalt is abundant in the urine of any perſon, the ſtone which may be formed therein, will aſſuredly participate of that abundance, and ſo on of the other principles into which the calculus may be reſolved, or of which the urine is made up. From hence I have been induced in ſome caſes to vary the adjuſtment of the ſeveral ingredients in the compoſition of the remedy, and have fancied I have diſcovered

covered advantages thereby; but the experience in that reſpect is not hitherto ſufficient to warrant a poſitive aſſurance of it.

I believe it would be thought ſuperfluous to draw any compariſon between the operation of the ſolvent, and the remedies hitherto propoſed for the cure of this diſeaſe. The experience of it for theſe ſeveral years render that altogether unneceſſary; and I have only farther to add, that I am firmly perſuaded a perſon might take it his whole life, even though no ſtone exiſted in the body, without being injured in his conſtitution: ſeveral of the following caſes ſufficiently authorize that declaration.

CHAP. VII.

SECT. I.

OF THE REGIMEN NECESSARY IN THE CURE OF THE STONE.

WHEN a patient finds himself attacked with the ſtone, either in the kidneys or bladder, it behoves him to lay aſide all violent exerciſe, eſpecially riding on horſeback; as it may endanger an hæmorrhage of blood, which, if often excited, would be likely to terminate in an ulcer.—There are people notwithſtanding, who are inconſiderate enough to adviſe every ſpecies of motion, with a view of forcing out the ſtone: a procedure however, to which none ſhould agree or adviſe.—It has coſt many their

lives, while others have thereby incurred inveterate ulcers.

J— D—, Eſq. near Richmond, fell a ſacrifice to this prepoſterous advice, the which, reflects as great a cenſure on the judgment of the ſurgeon who gave it, as it does unhappineſs on the minds of this young man's friends for his loſs: nor is it more ſurpriſing that ſuch abſurd notions of the diſeaſe ſhould be entertained by a man of the profeſſion, than that a patient of the beſt underſtanding ſhould implicitly yield to a doctrine which, at firſt view, militates againſt common reaſon, and occaſions daily uneaſineſs in reducing to practice; but it is left to phyſic to exerciſe its unbounded ſway over the faculties of even great minds, as it is that of ſuperſtition to tyranize over weak ones.—I was informed, that in the beginning of the diſeaſe the ſand which uſed formerly to paſs freely with his urine, had ſtopped, and

was ſuppoſed to have concreted, or at leaſt to have collected in a quantity at the neck of the bladder, and began to occaſion frequent irritations and even obſtructions in urining: — he had recourſe to laxatives and warm bath at times, which generally abated the heat and tenſion about the region of the bladder, and procured a plentiful evacuation of water — but this complaint would return at diſtant periods, and ſoon aſſumed a more formidable appearance, for now he had total ſtoppages of making water, and ſometimes it would be coffee coloured, or tinged with florid blood, with pain invariably ſucceeding the making it.—It was about this period that this young gentleman began to be ſeriouſly alarmed, and conſulted the perſon before alluded to, who gave for his opinion, that there was no ſtone (notwithſtanding the bloody water and conſequent pain) but that it was gravel which was making its efforts to paſs but

could not for want of proper exerciſe, he was therefore directed to take mucilaginous draughts and ride on horſeback daily, if the weather permitted.—This hazardous experiment, like many others, flattered but to deſtroy; for the diſcharge of ſome looſe ſand following the firſt day's extraordinary motion, ſeemed to confirm the opinion entertained of the diſorder, and to point to a certainty of its removal: but alas! theſe illuſive appearances ſoon changed their dreſs, for as they had ſeemed to prognoſticate advantage by perſiſting in the means that produced them; the horſe was brought out in all weathers, and even a hint given, that a hard trot muſt of all other paces be the moſt likely to expedite the ſought-for relief. It is a melancholy aſtoniſhment to obſerve with what reſolution he perſevered in this courſe, in ſpite of the acute pain he felt at every uneven ſtep of the horſe; inſomuch that he was obliged to diſmount at Ham

Common once, and fainted away: every perſon about him (to ſome of whom he was known) were under the greateſt apprehenſion of immediate death, for in this ſyncope, the urine had involuntarily paſſed, and of ſo ſtrong a tinge of blood that it was conceived to be wholly of the latter; he was now, after a few hours recovery, carried home in a coach, and gave up the practice which had in its outſet promiſed ſo much good, but in its progreſs had created ſo much pain and difficulty.—There was now no time to be loſt, he therefore came to town, and was, by Mr. P——, ſounded, who peremptorily declared a ſtone in the bladder; for the removal of which, he recommended him to go to Briſtol, and take the lixivium with the waters: the diſorder being now aſcertained he reſumed his hopes, and with his wonted aſſiduity took the above medicine under the moſt abſtemious diet: a more than common attention was paid to his urine

to

to endeavour to diſcover any part of the ſtone which might paſs, but unhappily that deficiency was made up by a diſcharge of abundance of mucus, mixed with a purulent conſiſtence, which would, if kept two or three days, yield a ſmell that indicated more miſchief in the bladder than the mere ſtone—he had always inclined to be ſcorbutic in a ſmall degree, which was conſiderably aggravated by the lixivium, for at this time he grew ſallow in his complexion and bloated in his countenance, and he ſhewed all the marks of bad habit, this prevalency, and the depraved ſtate of his fluids from continued pain and rigorous diet, had occaſioned the laceration, or excoriation (which the ſtone's friction had made in the part) to degenerate into an ulcer, of the exiſtence of which there was not the leaſt cauſe to doubt. Not finding relief from pain by the lixivium, but experiencing gradual ſymptoms of extreme relaxation

and

and putridity from continuing its uſe, he betook himſelf as a *dernier reſort* to the ſolvent, to which he was ſtrongly recommended by Sir N*** T***** his phyſician: the operation had never been recommended to him, doubtleſs from the ſmall proſpect his habit afforded of a recovery, and therefore the giving him the ſolvent could only be ſuggeſted by the neceſſity of his trying ſomething, for he had the ſtrongeſt apprehenſion he ſhould languiſh under the daily drain of ſuch a profuſe ſuppuration of pus, which even at times had an ichorus appearance when firſt evacuated—he took the medicine long enough to collect a ſmall quantity of the outſide lamina of the ſtone, in the form of ſmall ſhell-like pieces, but he grew weaker and weaker from the ſtrength of his ſtomach having been deſtroyed, and in taking a ride from Bath a ſhort time ago in order to ſee him, I learnt he had died three days before.—I have been the more particu-

lar in detailing this caſe, as it is attended with more unhappy conſequences than many, and which, from the plauſibility in the commencement might be the fate of ſome others, if not better adviſed.—Such inſtances cannot be learnt but with the greateſt concern, ſince examples of recovery from exulceration of the bladder or kidneys occur too ſeldom to encourage the ſufferer with promiſes.—Much exerciſe, therefore, can never reaſonably be recommended but in a caſe of the ſimple gravel, where we are ſure there are no calculi too large to be driven through the paſſages with ſafety; nay, even in this caſe, it is more adviſeable to deſiſt from all violent motion.

The moſt ſalutary exerciſe is walking on ſmooth ground as long as the ſtrength of the patient, or ſtate of the diſeaſe will permit. It ſhould never be continued ſo long as to change the urine to a coffee-colour, or to appear tinged with blood.

If

If there be no reaſon to ſuſpect the ſtone to be large, or rough and hard, gentle motion in a carriage may be allowed: but this will be judged of by the frequency of making water, and by the pain attendant on the bladder's contracting round the ſtone after the urine is made.

The intention of cure by means of the ſolvent, is aſſiſted by retaining the urine in the bladder as long as can reaſonably be done: whence it is obvious, that all violent motion defeats this end by inducing a frequent ſtimulus to urine.

Our next conſideration reſpects the diet, which ſhould alſo be adapted to the ſtrength of the patient's ſtomach. In common caſes, unaccompanied with other diſorders, it will be ſufficient to attend to the following rules; in others, it is preſumed the patient will ſeek for particular information, as, in a compli-

cation

cation of diſeaſes, it may be neceſſary to make exceptions.

It is compatible with the nature of the diſeaſe, and the operation of the ſolvent, to incline as much as poſſible to a milk diet, eſpecially when the ſtomach is enfeebled, or the whole habit emaciated. It may be eaten in its natural ſtate, or made into porridge, rice-milk, cuſtards, or puddings. There is no fluid leſs apt to form ſtony concretions than this; nor any more likely to prevent feveriſh or irregular heats in the habit, which are great incentives to the ſtone: but as there are conſtitutions attacked with this diſeaſe, which have been always uſed to a more unreſtrained diet, I have thought proper to arrange a certain number of articles by way of breakfaſt, dinner, and ſupper, that the patient may be left to make choice of ſuch as beſt agree with his ſtomach and inclination. He will, by theſe means,

means, be prevented from being cloyed with the ſame food, and, conſequently, his regimen will be thought leſs ſevere.

For breakfaſt, milk, boiled or not; rice-milk, or milk-porridge; tea, coffee, or chocolate, with dry toaſt, or toaſt and butter, or bread and butter.

For dinner, plain broth; boiled fiſh of all ſorts; any kind of butcher's meat, not ſalted; but lamb and veal are preferable, and all boiled meats are more to be adviſed than roaſt, though the latter are not abſolutely to be excluded; all kinds of poultry, except geeſe and ducks; rabbits, boiled or roaſted. Of game, the feathered kind are preferable.—The prohibition of veniſon, turtle, and all made-diſhes with ſtrong gravy, muſt be diſpenſed with in moſt caſes; puddings, particularly of almonds, are highly proper. The following vegetables may be eaten of, with

or

or without melted butter; *viz.* potatoes, turnips, cabbages, cauliflowers, ſpinnage, peaſe, beans, and french-beans. The following are to be avoided; *viz.* artichokes, raddiſhes, aſparagus, onions, and all raw ſallads; alſo, cucumbers, unleſs eaten with ſalt only. The patient ſhould at all times avoid eating too much, as, if the ſtomach be ſurcharged, digeſtion is imperfectly carried on; whence flatulencies, want of ſleep, &c. are produced, and the diſeaſe is heightened by the urine becoming crude and ill-prepared.

The beſt kind of malt liquor for thoſe who live in London is porter, reduced with water to the ſtrength of table-beer: in the country, choice ſhould be made of the fineſt and beſt fermented ales, or table beer.

In reſpect to wines, (which ſhould be drunk only at, or after dinner,) the quantity

quantity cannot be prefcribed with propriety, as that muſt depend upon cuſtom and other circumſtances, and the table at the end of this chapter, will ſhew which are the leaſt liable to reduce the power of the ſolvent: the ſame in regard to fruits, which ſhould be eaten only at dinner, either in tarts, or with or without ſugar, by way of deſert.

In the afternoon, tea or coffee may be drunk, with bread and butter, toaſt, or biſcuit.

In regard to ſupper, the greateſt caution is neceſſary that it may not (by its being taken ſo near the doſe of the ſolvent) militate againſt its operation. It is wiſhed that the medicine ſhould be abſorbed with as ſmall a quantity of chyle as poſſible, and that it may avoid all haſty fermentations in its paſſage from the ſtomach; for this reaſon, panada, water-gruel, milk-porridge, dry-

toaſt,

toaſt, or biſcuit are to be preferred to other things; or at moſt an egg and ſpinnage, or a boiled egg, drinking rum or brandy and water; or wine and water. Where a thirſt prevails, it is proper to have recourſe to a draught of barley-water at any time in the day.

To thoſe who can be perſuaded to relinquiſh ſuppers entirely, more may be promiſed from the power of the ſolvent, it is nevertheleſs to be underſtood, that this is merely to avoid fermentation in the ſtomach, (ſo inimical to the ſolvent,) and not to reduce the patient's ſtrength, for ſhould it do ſo, no peculiar good can ariſe from it; 'tis hoped therefore, that with one meal a day (a dinner) and not leading an active life, he will neither loſe ſtrength or fleſh, or at leaſt but in a moderate degree.

Concerning the quantity of fluids that ſhould be drunk in the courſe of the day,

it ſhould not be leſs in the whole than about four Engliſh pints of 16 ounces each. By this is meant the broth, tea, barley-water, and all the liquids drunk throughout the day; but in caſes of fits of the ſtrangury, attended with a more than common irritation, it may be neceſſary to reduce or enlarge that quantity, by interpoſing draughts of veal-broth or almond emulſion, water-gruel, &c.—Let it be particularly remembered, that acids, and all ſtrongly aceſcent liquors, ſhould be forbidden during the uſe of the ſolvent, eſpecially near the time of taking it; ſo that fruit and tarts at ſupper, cannot but be highly improper.

Many perſons are inclined to be coſtive during the firſt ten or twelve days of taking the ſolvent: this is by no means an unfavourable omen; it is a proof that the latter ſecretions of the body

body are moderated, and that the medicine will not paſs off too precipitately.

Now, although this coſtiveneſs will generally go off ſpontaneouſly at the end of the above time, yet it is very neceſſary to looſen the belly with ſome gentle aperient medicine, ſuch as any of the following; *viz.* magneſia; manna; infuſion of ſenna, or Rochelle ſalts: Half an ounce of the latter taken in half a pint of water-gruel, never fail to procure the deſired effect, leaving the bowels cooled and refreſhed. Theſe laxatives are not however, to be uſed but from neceſſity, and even then a frequency of ſtools is not deſirable, ſince it would leſſen the power of the remedy.

Many and reiterated obſervations have convinced me, that the ſurface of the ſtone is often rendered clammy and unctuous by the effect the ſolvent takes upon it. This clammy ſubſtance is of

the ſame nature as that diſcharged with the urine, of a clay colour.—Now I have found that this gummy matter, when it ſurrounds or envelopes the ſtone, defends it, in a meaſure, from the full operation of the ſolvent; and that when it is detached, the ſtone is again laid open to its power, and the cure is thereby greatly accelerated.—To bring about ſo deſirable an event without the preposterous and dangerous effect of ſtrong exerciſe or motion, has been the object of my conſideration; and I find nothing ſo advantageous as the following.

At the diſtance of about every three weeks, one may reaſonably preſume that the outſide lamina of the ſtone has been reduced to the conſiſtence above deſcribed, in which caſe I recommend the patient to take in the day 2 or 3 half pints of new cheeſe whey, obſerving an interval of five or ſix hours from each half pint, this is to be done for three

days

days ſucceſſively, during which time the patient is requeſted to walk about gently on ſmooth ground, as often as ſhall be found conſiſtent with the ſtate of the diſeaſe. This method, is to be purſued at the end of every three weeks while taking the ſolvent, and the diet for theſe three days may, in every reſpect, be as before.

This courſe will alſo be attended with another good effect, which is, that ſhould any coſtiveneſs predominate, the whey will remove it, for which reaſon the ſolvent is to be omitted while the whey is taking.—There can be no difficulty in procuring whey where-ever new milk can be had, as the manner of making it is univerſally known.

A TABLE SHEWING THE PROPORTION IN WHICH SEVERAL WINES AND JUICES OF FRUIT REDUCE THE POWER OF THE SOLVENT ON THE HUMAN CALCULUS.

THE ſtandard for the following experiments was that of one part ſolvent and three parts ſimple water, this being the moſt natural vehicle for its operation.

That mixture, as well as the reſt, was kept in a regular, and nearly a blood heat, by the thermometer, for twenty-four hours. The reſult of theſe experiments, therefore, points out which of theſe articles ought to be more abſtained from than the others.

The

The power of the ſtandard mixture on a piece of calculus of four ſcruples weight was, for a ſcale of compariſon, marked at the degree of 40

With the ſame quantity of juice of ripe melon, in the ſame ratio, it was reduced to only 29

With pine apple juice 27

With peaches, apricots, and nectarines, nearly alike 25

With mulberry juice 21

With codlings 17

With red gooſeberries 14

With red currants 12

WINES REDUCED THE SOLVENT AS FOLLOWS:

With madeira 29

With mountain and frontiniac . . 28

An old burgundy and claret . . 27

Old red port 26

Vin de grave, liſbon, malaga, *nearly* 25

A light florence, or carminiano wine 24

From the fore-mentioned table we ſee the difference is very trifling with regard to the ſeveral wines, only it behoves one to be careful that they have a certain body, good age, and free from tartar, otherwiſe they are more ſuſceptible of fermentation in the ſtomach.

The ſame caution is equally neceſſary, if not more ſo, in reſpect to malt liquors.

CHAP.

CHAP. V.

SECT. I.

STRICTURES ON THE GOUT, SO FAR AS CONCERNS A COMPLICATION OF IT WITH THE STONE.

THE gout is another of the dire evils to which human life is heir; and when it falls to the lot of a perſon already afflicted with the ſtone, muſt of courſe, render the patient's exiſtence a ſcene of affliction.

This is by no means intended as a diſſertation on the gout itſelf, ſince much more might be ſaid upon its cauſe, indications, and cure, than can be neceſſary in this place; and yet as much ought to be ſaid as may concern an individual who

who ſhould ſuffer under a complication of the two complaints.

From the great number of perſons afflicted with both theſe diſorders at the ſame time, I was led to conclude that one of them muſt have a conſiderable influence in bringing on the other: how far this is the caſe, I ſhall leave the judicious to determine by the reaſons hereafter given.

Now ſuppoſing a perſon to be firſt attacked with the ſtone to any degree, of courſe he is prevented uſing *exerciſe*, the moſt powerful and ſucceſsful means of keeping the blood and juices in a due and healthful temperature. For want of that exerciſe, the blood becomes denſe, and the juices of the body vitiated and ropy, conſequently, more likely to form, and leſs able to throw off, any morbid concretions or obſtructions in the veſſels.

That

That nothing can be more likely to do this than a deprivation of exerciſe, is obvious to every one; it is even the firſt thing recommended as a remedy in a lentor of the fluids. In the ſtone (particularly of the bladder) the patient has generally a good appetite, ſo that it is no wonder the juices of the body ſhould degenerate and run into the crude ſtate before mentioned, when no exerciſe can be uſed to carry off the feculencies of the fluids.—When the ſeveral juices of the body have acquired that unnatural viſcidity, daily experience evinces their circulation is leſſened in proportion to their increaſed conſiſtence.

The formation of thoſe chalk-ſtones of the joints is exactly analogous to the ſtony concretion in the kidneys and urinary bladder, ſince a languid circulation is a cauſe of the former, as a diminiſhed action of the veſſels upon the fluids is that of the latter; nor is the cauſe of

theſe two diſorders, the only analogical part of them, ſince their paroxyſms, and the efforts nature makes to obtain a relief from them, are exactly ſimilar; for as ſoon as the conſtitution becomes ſenſible of a ſtony concretion having formed itſelf in the kidnies or bladder, the conſequent irritation of ſuch concretion brings on a ſymptomatic fever or paroxyſm, which is called a fit of the ſtone, and if the concretion has not proceeded too far before the habit is alarmed, it will, if in the kidneys, be thrown into the ureter, and from the bladder into the urethra.—— Now let us advert to the progreſs nature purſues in the other diſeaſe. As ſoon as the gouty matter is formed from the ſerum of the blood, the ſame heat and fever are excited, and by means of an increaſed circulation the morbid matter is thrown from the more vital parts to the extremities or joints, where the reſiſtance is leſs; an extraordinary heat and partial fever take place from the

part

part having become the depoſitory of the foreign matter, and a violent ſweat from the relaxed mouths of the veſſels enſues, and frequently proves the preſent cure of the diſeaſe.

I ſhall not even enter into a detail of the method of cure to be purſued in this diſeaſe, ſince without doubt if any one ſhould be adventitiouſly attacked with it during a courſe of the ſolvent, he will apply to a phyſician for proper aſſiſtance; but it is neceſſary to obſerve that it will be adviſeable to omit the ſolvent during the adminiſtration of other remedies ordered for the gout, as they would militate againſt the operation of the ſolvent; for inſtance, ſhould the diſorder attack the ſtomach, warm cardiac medicines would undoubtedly be preſcribed, which would conſiderably weaken or deſtroy the effect of the ſolvent:—again, if the diſorder ſhould be ſeated in the extremities, diaphoretics would be reſorted to, which

which would, in an equal degree, fruſtrate its operation, ſince its power which ſhould be exerted in the bladder would, by the ſudorifics, be directed to the ſuperficies of the body.

In habits long accuſtomed to the gout, it is highly probable they may not eſcape an attack at the uſual time; but it has been remarked to me by many under complications of theſe diſorders, that ſince taking the ſolvent, the fits they have been ſeized with, have been more moderate, and of ſhorter duration than before. I have therefore only to add, that gouty perſons are by no means precluded taking this medicine, ſince it will not in any reſpect aggravate their arthritic complaints, nor will the remedies given in the gout be attended with any other conſequence to the ſtone, than retarding its cure, by the courſe being intercepted during the taking of ſuch medicine.

It is now high time to haſten to the moſt important part of this ſubject, and on which the hopes and recovery from ſickneſs and pain of numbers are involved.—The practice of phyſic more than all the other ſciences, admits of much ſpeculation and abſtruſe reaſoning, and the theoriſt who is fond of indulging his fancy, has in it, an ample field for dazzling his own and his reader's eyes, by diſplaying a ſubject, which, in its cleareſt point of view, is ever clouded with much doubt and uncertainty; nevertheleſs, we often ſee a notional phyſician theoriſe with a plauſibility and eaſe upon diſorders, as if nature had laid open all her myſteries to the profeſſor, and nothing remained to be inveſtigated. But medicines operate in moſt caſes with obſcurity, and whenever their powers are directed beyond the *primæ viæ* we trace them in the dark, and often confound them with the works of nature herſelf: hence falſe inferences

are

are deduced, to prove what can never be eſtabliſhed.—Such is the caſe in fevers and many other acute and chronic diſeaſes. The ſubject of this little diſcourſe ſtands alone on this ground, it being almoſt the only diſorder which preſerves diſtinguiſhing manifeſtations and criterions, and in which the operation of a medicine can be accurately ſcanned: I therefore diſclaim all advantages from ſpeculation, and reſt my pretenſions to indulgence on what will ever be of more conſequence in phyſic, *facts*. Every acquiſition of this kind will always meet with a more welcome reception to the real lovers of the art (however ſimple in narration) than the moſt brilliant theory, decorated with the moſt refined language.

The following caſes of cures effected by the ſolvent are ſelected from numberleſs other, either for their variety or from the diſtinction of the perſons on whom

whom they were performed; and the author has no fear of being thought prolix or unneceſſarily diffuſe, ſince each caſe is a ſort of comment on the medicine's operation, and will throw ſome additional light on the diſeaſe itſelf, they will render any encomium on the remedy unneceſſary; as it will be allowed that no inſtance can be given of any diſcovery being more reſpectably diſtinguiſhed, and eſtabliſhed, in teſtimony, and reputation.

CASE I.

OF THE RIGHT HONOURABLE LORD VISCOUNT SACKVILLE, LATE ONE OF HIS MAJESTY'S PRINCIPAL SECRETARIES OF STATE, AND OF HIS MAJESTY'S MOST HONOURABLE PRIVY COUNCIL.

In December 1774, I was desired to meet Sir John Elliot at Lord Sackville's, to consult upon his lordship's case, which I found had at one time been treated as a calculous one, at others, as a laxity in the kidney, and which was supposed to give rise to an extravasation of blood.—Under the supposition of the latter being his disease, he had been prescribed balsamics and astringents; such as *bark*, &c. These medicines, although they lessened the bloody water, did not abate his pain; on the contrary, his disease was found to grow upon him.—In a short time his suffer-

ings

ings increaſed to ſuch a degree, that his lordſhip has been known to take upwards of a hundred drops of laudanum in a night. He informed me, that at frequent times the hœmorhage of blood was ſo great, as to threaten the moſt alarming conſequence. It may be ſuppoſed, that his lordſhip had conſulted the moſt eminent ſurgeons, as well as phyſicians, upon his ſituation, which was not, after all, deemed the ſtone, becauſe he had not been ſenſible of having paſſed any ſand or earthy matter in the urine. After he had, in the moſt accurate manner, related the progreſs of the diſeaſe, I did not heſitate to pronounce his caſe *ſtone*; and recommended the immediate uſe of the ſolvent. His lordſhip began it that day with the greateſt readineſs, particularly as he had been ſtrongly prepoſſeſſed in its favour, from the accounts he had heard of its effects.—I waited upon his lordſhip the next day, when he told me, that the ſolvent agreed per-

fectly well with his ſtomach, and was not diſagreeable to his taſte.—In a few days I found his urine began to aſſume its natural colour, and the violent pain about the region of the loins decreaſe. I attended his lordſhip at the diſtances of two or three days, until I had the pleaſure to find he was exceedingly mended in health. I had alſo the further ſatisfaction to diſcover a diſcharge of ſabulous matter in the urinal, which removed every doubt of the nature of his diſorder. This in about a month after, was farther cleared up by the evacuation of a piece of ſtone, which was exceedingly hard within, and had all the evident marks of having been acted upon by the ſolvent.—By this time (which was March) the bloody water had entirely ceaſed to come away, and only the ſlighteſt tinge was obſerved in it upon any extraordinary occaſion or fatigue. His lordſhip continued to take the ſolvent regularly 'till it was concluded

cluded the calculous concretions were entirely brought off; but he had ſuffered ſo much from the diſeaſe, that he choſe, nevertheleſs, to continue taking the ſolvent in ſmaller doſes, although the neceſſity of it was no longer enforced. This caution he has obſerved ever ſince, having taken three or four bottles a year for theſe eight years, during which time he has not only kept off the ſtone, but confeſſes to have enjoyed as good health as at any time of his life: his lordſhip is therefore a happy teſtimony, not only of the power of the ſolvent in removing the ſtone when preſent, but alſo of its peventing the return of the diſorder; it being now ſo many years that he has enjoyed uncommon good health.

The benevolence of his lordſhip prompted him to deſire that his caſe might be publiſhed, for the benefit of thoſe who may unfortunately ſuffer under this ſevereſt of diſeaſes.

CASE II.

THE CASE OF —— ALLANBY, ESQ. RECEIVER GENERAL OF HIS MAJESTY'S QUIT RENTS IN THE ISLAND OF ST. JOHNS.

MR. ALLANBY was ſeized with every ſymptom of the ſtone while in the iſland of St. Johns, on which account he came over to England in expectation that the operation would be neceſſary; one of the ſurgeons he conſulted on his diſorder adviſed him to try the ſolvent previous to any other ſtep;—he very readily acceded to the propoſition and immediately began a courſe of it, in which he regularly perſevered 'till he voided ſeveral pieces of ſtone, after which he evacuated a good deal of fine ſand and mealy powder in his urine, in this way he continued ſeveral months, growing eaſier as the

the ſtone diminiſhed in ſize; for at firſt he ſuffered ſuch extreme pain as made him unable to walk, or even ride in a coach, except with great difficulty; his urine alſo, upon any exertion of the body, would be at times bloody, and at others of the colour and conſiſtence of coffee grounds, as Mr. Allanby's intention was to have been cut for the ſtone when he firſt came over, he had not taken meaſures for any conſiderable ſtay in London, ſo that I was deſired by him to repreſent his caſe profeſſionally to his majeſty's ſecretary of ſtate, in order to obtain permiſſion for his ſtay ſo long here as might be neceſſary to complete his cure.—His majeſty was pleaſed to give him leave, and he continued inceſſantly to take the ſolvent in the uſual quantity 'till the pain entirely ceaſed, and there was not an indication of the leaſt part of the diſorder remaining: however he determined ſtill to take it for a time by way of totally expelling any

looſe ſand that might otherwiſe adhere to the neck of the bladder; as he now remained perfectly well and diveſted of any uneaſineſs whatever in the bladder or kidneys, he wiſhed to be ſounded, for ſatisfaction, ſo that he might be convinced the ſtone was totally diſſolved; for this purpoſe I introduced a ſound into the bladder, and ſcrupulouſly ſearched therein, when it appeared there was not the leaſt cauſe to ſuſpect a particle of the ſtone was left behind, he accordingly omitted, in part, the ſolvent from that time, and has nevertheleſs been well ever ſince.

CASE

CASE III.

THE CASE OF THE REV. MR. FOWKE MOORE, AS TRANSCRIBED VERBATIM FROM HIS LETTER TO THE AUTHOR.

To Mr. Perry, Surgeon, &c.

SIR,

I flatter myself it will be unneceſſary to apologize for the trouble occaſioned by this letter, which gives you an account of the ſucceſs of your ſolvent for the ſtone, &c. Encloſed I ſend you the ſtate of my caſe, as I had it printed in different news-papers, and which you are alſo at liberty to make uſe of as you pleaſe.

I have the pleaſure to inform you, that I have had many applications made to me ſince my cure; ſome from perſons with

with whom I was entirely unacquainted, deſiring to be informed of every minute particular, which I have not failed to anſwer. I have taken the utmoſt pains to do juſtice to your medicine, which is no more than my duty; and yet I am largely recompenſed for any trouble I have, in the pleaſing proſpect of being the means of relieving many miſerable people, and at the ſame time increaſing your emoluments by the ſale of your truly valuable ſolvent.

I hope you will take care to have this kingdom always properly ſupplied with it; and I think it would be adviſeable to have it in ſeveral of our beſt country towns, particularly in this northern province, viz. Belfaſt, Derry, Newry, &c. which are full of people.

I requeſt you to pardon the liberty I take in giving you this advice unaſked, as it proceeds from my fellow-feeling for

for my unhappy countrymen, who labour under that dreadful diſorder, and from an earneſt deſire to be ſerviceable to you, who have been the happy inſtrument, under God, of reſcuing me from the jaws of death.

I ſhould be glad to have it in my power to do you any ſervice, for I am, with great truth and ſincerity,

Dear ſir,

your much obliged,

and very humble ſervant,

FOWKE MOORE.

IRELAND, Dungannon,
November 4th, 1776.

THE

THE *ADVERTISEMENT.*

"The REV. FOWKE MOORE, of Dungannon in the county of Tyrone, having been cured of a ſtone in the bladder by the above medicine, thinks it his duty, both in gratitude to Mr. *Perry* the diſcoverer of the medicine, and in compaſſion to all thoſe who labour under that excruciating diſorder, to publiſh his caſe, which is as follows:

"In the beginning of December laſt, 1775, he was ſounded by an eminent ſurgeon in Dublin, who immediately found a ſtone of a middling ſize; upon which, by the advice of phyſicians, Mr. Moore went under a courſe of ſoap-leys, which he continued from the beginning of December, to the 23d of May laſt, during all which time he had a moſt violent complaint in his bowels, and found not the ſmalleſt relief in the pain

of

of the ſtone: he was ſo emaciated, that it gave him pain to ſit without a cuſhion, and ſo weak, that he could not ſtep into bed without aſſiſtance.

"On the 23d of May, he began to take the *ſolvent*, and in a fortnight afterwards, he found a change for the better. From that time he began to diſcharge gravel, ſand, and glutinous ſtuff in great quantities, which continuing for about three months, then gradually decreaſed; He has now no complaint of any kind, and is convinced that the ſtone is entirely diſſolved. He has recovered his fleſh and his colour, and is able to ride a hard trotting horſe five miles an hour.—Any perſon who is deſirous to be informed of more particulars, may apply to Mr. Moore in Dungannon."

Dungannon, Oct. 10, 1776.

The

The caſe of Mr. Moore, not only evinces the power of the medicine in diſſolving the ſtone, but alſo its ſalutary operation. Nothing can more effectually prove it to be of a nature oppoſite to *lixiviums*, or *ſoap leys*, than this caſe; as it is obvious to every one, that, if the quality of the ſolvent was in the leaſt ſimilar to thoſe, ſo far from removing the ſickneſs of his ſtomach, broken craſis of the blood, and emaciated habit (which were plainly the effects of thoſe medicines) it would have aggravated them.

CASE

CASE IV.

THE FOLLOWING LETTER CONVEYS THE CASE OF A LADY AT TWICKENHAM, TO WHOM THE KNOWLEDGE OF THE SOLVENT WAS COMMUNICATED BY THE LATE LADY GEORGE GERMAINE.

SIR,

I was greatly afflicted with the ſtone and gravel for at leaſt twenty years, during which time I voided a great quantity of gravel, but no ſtone, I was laſt June ſeized with violent pains in my right hip and groin. To deſcribe what I felt, is impoſſible; and 'till December, I never enjoyed one moment's eaſe, night nor day, except when aſleep, which reſt itſelf was of ſhort duration. I then took your excellent ſolvent, which, in leſs than a fortnight, began to bring away the ſtone by diſſolving it to a fine ſand. It is judged, when whole, to have been as large as a pigeon's egg: I took

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the ſolvent but about ſix weeks, which, with the bleſſing of God, has, I believe, quite cured me. I have taken none ſince November laſt, and yet I continue very well. May God ſtill give his bleſſing to your medicine, by which, I hope, numbers will be relieved as well as your very humble ſervant,

Twickenham, *March* 8th, 1776. MARY LOVE.

From the rapid diſſolution of the calculus in the foregoing caſe it may be fairly concluded, that beſides the advantages that ſex derive in this diſeaſe, from the different ſtructure of the ſeats of it, over that of men; that their more temperate diet alſo prevents the ſtone from acquiring that firmneſs of contexture which is uſual in the other ſex:—this obſervation will appear more than conjectural in the recital of the following caſe, which, for its ſingularity, is retained in this edition though publiſhed in the former ones.

CASE

CASE V.

THE FOLLOWING CASE WAS TRANSMITTED TO ME BY THE FAVOUR OF RICHARD PHELPS, ESQ. OF DUNSTER, NEAR MINEHEAD.

MRS. BARNES, of Taunton, in Somerſetſhire, had been afflicted more than ſeven years with the confirmed ſtone and gravel, to a very violent degree, during which time, ſhe conſulted the moſt eminent in phyſic, even thoſe who were at a great diſtance; and altho' ſhe had taken almoſt all the medicines common in theſe caſes, ſhe daily grew worſe, inſomuch that ſhe was at length given entirely up, and her death every hour expected. In this melancholy condition, ſhe was informed of the ſolvent, and was prevailed upon, even in that languid ſtate, to begin a courſe of it. She was ſoon ſenſible of eaſe, and began to diſcharge ſome gravel; and was now ſufficiently convinced of the ſafety of its operation, of which before, ſhe

had entertained ſome doubt, by the ſuggeſtions of ſome phyſical neighbours; ſhe took the ſolvent regularly to the ninth ſecond ſize bottle, by which time ſhe had voided ſuch a quantity of ſand and gravel as could ſcarcely be credited, being, it is averred, not leſs than half a pint. By this favourable diſcharge of gravel, together with the ceſſation of many diſagreeable ſymptoms, ſhe had reaſon to hope her diſeaſe was about to leave her; but ſhe was ſuddenly ſurpriſed by an attack of the moſt acute pain ſhe had ever felt, the irritation of which had abraded and forced away the mucus of the bladder, &c. in a great degree. In this ſituation ſhe conſulted me by letter; and as I had not the leaſt doubt but there was a ſtone endeavouring to paſs, I recommended her to take the ſolvent in full doſes, and adviſed her to deſiſt from much motion, 'till ſhe was better: ſhe did ſo, and before a third part more of a large bottle was taken,

ſhe

ſhe paſſed, with very moderate pain, a ſtone about an inch long, and very near as much in circumference; this was followed by *two* more, very little ſmaller, which very conſiderably leſſened her uneaſineſs. She continued the ſolvent to the end of two bottles, by which time ſhe had voided near a hundred ſmall ſtones, the largeſt of which were of an uncommon ſhape, almoſt flat, reſembling in figure, ſmall dried garden-beans. The pains now entirely ceaſed, and before ſhe quite left off the ſolvent, her water, which before had aſſumed every morbid colour and conſiſtence, now became entirely clear; and ſhe recovered her ſtrength and appetite to the aſtoniſhment of all who had known her before. The progreſs of this cure is ſo truly wonderful, that the world might juſtly ſuſpect its reality, if it was not authenticated by many reputable perſons in the neighbourhood, her ſituation having been univerſally known.

CASE VI.

THE FOLLOWING LETTER CAME TOO LATE TO BE INSERTED IN THE FORMER EDITION, EXCEPT IN A FEW BY WAY OF APPENDIX.

To Mr. Perry.

SIR,

WE the miniſter, church-warden, overſeer, and other the principal inhabitants of the pariſh of Elſenham, in the county of Eſſex, join with James Clark in returning you our moſt hearty thanks for the very remarkable cure of him by your moſt valuable ſolvent. He is a very ſober, honeſt, poor man, who has no leſs than ſeven children: he had been greatly afflicted with the ſtone and gravel for many years, and for ſeveral of the laſt, to ſuch a violent degree, with

with ſuch excruciating fits, as to render him quite incapable of ſtirring out of his houſe for four years together.

Your ſolvent brought from him, great quantities of gravel and pieces of ſtone, and now, by the bleſſing of God, with that excellent medicine, he is ſo well reſtored to health, from that diſorder, which had baffled the power of all other medicines, that for above a year paſt he has been able to go to his daily labour as another man, and has gone through it with far more eaſe and pleaſure than could poſſibly be expected; to the great aſtoniſhment of every body who knew his caſe.

Your generoſity and goodneſs to this deſerving object of compaſſion, in ſending him the ſolvent, time after time, *gratis*, cannot fail to yield a true ſatisfaction to, and reflect the greateſt honor on your liberal mind; and we beg leave

to assure you, that we are ever ready to authenticate this very singular and extraordinary cure, in justice and gratitude to you, and as a duty we owe to the public.

Signed by order of the said parishioners,

By, sir,

your most obliged

humble servants,

John Canning, minister,
John Mumford, church-warden,
John Pamphillon, overseer.

CASE VII.

THE FOLLOWING IS THE CASE OF HUGH STEVENSON, ESQ. A SURGEON AT EGHAM, SURREY, BEING AN EXTRACT OF A LETTER FROM HIM TO MR. HOME, SURGEON OF THE SAVOY, AND PUBLISHED IN A SMALL WORK OF THIS LAST MENTIONED GENTLEMAN.

"About twelve years ago, from want of reſt, and continual pain (which was daily encreaſing, in ſpite of the many powerful medicines taken to relieve me) my fleſh was waſted, my appetite decreaſing; night ſweats, with ſwelled legs came on. I could not walk a quarter of a mile, could not ride on horſeback, could not bear the motion of a coach, except on turf, or very ſmooth road, without ſevere pain and making bloody water. I could not lie in bed above a

quarter of an hour at a time, from an irritation to make water, then did not make above half an ounce at a time, and that by drops, with very acute pain; when turning in bed, which I was obliged to do every time I awoke, the ſenſation from the ſtone rolling in the bladder, made the whole ſurface of the body ſo irritable, that, if any part of the ſheet or bed cloaths touched me, it felt like cutting with an edged inſtrument; ſo that Mrs. Stephenſon was always obliged to ſupport the cloaths while I was turning.

Thus circumſtanced, I was told of much benefit being received by taking, Mr. Perry's medicine known by the name of *Adams's Solvent*; having an opportunity to taſte it, and diſcovering nothing corroſive or unpleaſant in it; tempted by the ſmallneſs of the quantity neceſſary to be taken, I determined, though without faith, to give it a few weeks trial.

I took

I took it nearly in the manner and quantity directed in the printed paper wrapped round each bottle, viz. two tea-ſpoonfuls night and morning in veal broth, barley water, milk and water, &c. which I encreaſed in a fortnight to three tea-ſpoonfuls at night.

I had not taken more than two of the ſmalleſt bottles, when I thought ſome of my ſevereſt ſymptoms were not ſo acute; by this encouraged to perſevere, in three months I felt ſenſible relief, made water with leſs pain, and at longer diſtances; in ſix months I could ſleep ſound an hour and a half at a time without irritation to make water; could walk a mile, and bear the motion of a carriage moving gently.

At the end of twelve months, ſtill continuing the uſe of the ſolvent, I could bear the motion of a hackney-coach over the ſtreets of London, with but little

little inconvenience; could lie in bed for two hours and a half, without irritation to make water; could turn in bed without pain, or even feeling the motion of a ſtone. My health was by no means hurt by the uſe of the medicine, but on the contrary, I eat, drank, and ſlept better than before; and though I by no means could call my then ſituation a perfect cure, yet I felt myſelf comparatively happier than if I had never been ill.

I for two years afterwards continued the medicine in ſmaller quantity, and am at this time, I thank God, in perfect health; and what little difficulty remains in making water, I impute to a diſeaſed ſtate of the neck of the bladder and adjacent parts, from the injury they had received from the ſtone, when ſo many years irritating and lying on them; as well as from the frequent returns of tumid and inflamed bleeding piles.

From

From a tendency to make coſtive, and rather heat, I have when taking the medicine, abſtained from every heating cauſe, by meat, drink, exerciſe, &c. and if from cold, or any other accidental cauſe, fever came on, I diſcontinued its uſe, 'till theſe ſymptoms by proper medicines and regimen were removed. Caſtor oil, ſoap, and rhubarb, and large glyſters, &c. were occaſionally uſed to counteract its aſtringency.

Throughout the taking of the ſolvent, nothing has come away in the form of a ſtone, but for the firſt ſeven months, the water was turbid when made; and immediately depoſited a quantity of impalpable powder. When dry, this powder ſhewed no ſaline chryſtals, nor did it diſſolve in warm water, but immediately ſubſided. Does not the above appearance give reaſon to ſuppoſe, that the impalpable powder was a part of the ſtone diſſolved? As by a continuance

of

of the muddy diſcharge, the pain decreaſed and gradually diſappeared; is there not ſome reaſon to ſuppoſe the ſtone is diſſolved, or at leaſt rendered ſmooth, ſo as to give leſs pain? If only leſſened or made ſmooth, would it not ſometimes fall upon the neck of the bladder, or obſtruct the diſcharge of urine, which is not the caſe? If the ſtone is not diſſolved, (which I flatter myſelf it is) it muſt have adhered, or is confined in a ſac, and ſo not felt.

But let me not *theoriſe*, only return thanks to *Almighty God!* for the happineſs I now enjoy, in being reſtored from a ſtate of the greateſt miſery and diſtreſs, to a ſtate of perfect health.

I moſt ſincerely wiſh that you, *Egham*, Sir, &c. &c."

Dec. 20th, 1782.

CASE

CASE VII.

Mr. Scurrier, at Mr. Stone's, Park-Street, Groſvenor-Square, upwards of 85 years of age, conſulted me in a diſorder under which he had ſuffered for ſeveral years. The queſtionable ſhape it had aſſumed, prevented him from deriving even palliative relief, as at one time it would appear like inflammation, at another like a relaxation of both kidney and bladder; it put on however at laſt, a leſs equivocal appearance, for he had a call to make water eight or ten times in an hour, with ſuch exceſſive pain during, and after the making of it, that his neighbours often heard his cries, and he now paſſed urine almoſt as high coloured as blood, under theſe ſymptoms, I did not heſitate to pronounce the complaint the ſtone, and he immediately began a courſe of the ſolvent,

which

which he unremittingly took for five months with but faint appearance of advantages, he nevertheleſs was reſolved to continue it, from the warmth with which it had been recommended to him, and in three months more, he brought away ſeveral ſhell-like pieces of calculus which appeared to be flinty and of the colour of yellowiſh marble;—in the mucus was alſo a conſiderable quantity of earthy powder which could not well be ſeparated therefrom, and his pains now began to abate in a great degree; ſo that he could walk out of doors and hold his water two hours.

With ſhort intermiſſions from a cold, or from taking an opening mixture, he perſevered in the uſe of the ſolvent 'till the pain had entirely ſubſided, and no more of the pieces of ſtone or ſand could be traced to paſs, nor was his water either charged with mucus, or morbid in colour—notwithſtanding all this, and

there

there being no apparent neceſſity for it, yet he thought it prudent to continue the medicine once a day for a time longer, as an additional aſſurance from a return of the complaint; this end was fully obtained, for although it is now four or five years ſince he took any of the ſolvent, he has remained quite free from the complaint.

The

CASE IX.

The reaſon for not publiſhing at length, the name of the gentleman, whoſe caſe is here related, will be obvious; but it is at his particular requeſt it is made public, and he will make no ſcruple to communicate with any gentleman whoſe ſimilarity of ſituation may render him deſirous of information.

J— S—, Eſq. inherited calculous complaints, from his father; for the latter died of the diſorder at Briſtol, in the forty-ſixth year of his age; he ſays that as long as he can remember he paſſed conſiderable quantities of gravel, but that daily exerciſe and the conſtant uſe of honey which was his father's receipt, he believes prevented the formation of a ſtone, to which he apprehends his habit tended ſtrongly. At the age of twenty-five he begun his travels on the continent, where for the moſt part he

he enjoyed tolerable health except ſome ſlight attacks of ſtrangury, which he imputed to particles of gravel irritating the neck of the bladder in their paſſage; upon thoſe occaſions he had recourſe to opiates venæ ſection, and warm bath, and he uſually grew eaſy in a few hours after. He embark'd in the ſummer of 1773, at Marſeilles, for Smyrna, which voyage proved much more tedious by bad weather than could be expected from the ſhortneſs of the paſſage, and from this confinement and inactivity he dates the commencement of the *ſtone*, for in a month after his arrival in Turkey he was ſeized with a violent fit of the ſtone accompanied with bloody water and feveriſhneſs.—He was left wholly to his own management in that country, and he found his inflammatory ſymptoms conſiderably relieved by drinking freely of goats milk, but he now grew ſenſible of weight in the bladder, and could trace the motion of the ſtone in turning from ſide to ſide.

His being ſo well convinced of the exiſtence of a ſtone in the bladder determin'd him to return with all convenience to Europe, without viſiting Egypt, altho' almoſt his whole baggage had been ſent in a turkiſh ſhip to Cairo. In his way home he ſtop'd at Cyprus, where at Nicoſia, he fell into company with a greek merchant of ſome learning, who informed him after being acquainted with the nature of his complaint, that if he would conſent to accompany him to Aleppo, he would introduce him to an armenian phyſician who would undertake to cure him. After ſome conſideration he reſolved to put the profeſſor's ſkill to the trial, and in ten days he had an interview with him, after which he was put into ſeveral unnatural poſtures with a view of ſounding his feelings, as to the reality of there being a ſtone.—This circumſtance being placed beyond a doubt, an injection was made into the bladder with a fluid mixed with a portion of melt-

ed

ed fat from a ſheep's tail, through a tube which Mr. S. deſcribes to have the appearance of an animals gut dried, for it was flexible when firſt introduced, and after the warm fluid had been paſſed through it was quite flaccid, this operation he ſubmitted to, forty-ſix times, with conſiderable pain and difficulty, but he ſays with ſuch ſucceſs that he offered a conſiderable ſum for the ſecret; which was refuſed, after which he learned that a jew at Conſtantinople had been cured of a ſtone in the ſame manner. This happy event determined him again to reſume his travels, and he viſited moſt of the iſlands in the Archipelago and Mediterranean, and did not return to England for three years, where he took up his reſidence for ſome time in the neighbourhood of Litchfield, from which place he dates the unhappy re-commencement of the ſtone, having never ſince his quitting Aſia ſuſpected more than the lodgement of a little ſand for a ſhort

time in the bladder. The ſymptoms of coffee water; frequency to urine; teneſmus, &c. returned as bad as ever; and after ſome ineffectual remedies he determined to ſeek out his armenian benefactor once again, and renew his efforts to bring him to England; but by the time he reached Paris he was ſo worn with the pain, that he was perſuaded to ſuffer the operation under Frêre Comê the younger, who extracted 3 ſtones, the largeſt of which I have by me, this took place in the year 1775, and it was not till that of 1778 that he conſulted me for a third attack; the ſymptoms of his diſorder at this time were nearly ſimilar to thoſe in his former illneſs, and he loſt no time in beginning the ſolvent. A part of that ſummer he paſſed at Southampton where he eſcaped another danger; apparently as imminent as that under the hands of the french ſurgeon, for being out of the medicine, he

he employed a needy bookſeller of Wincheſter to ſupply him with it, who by ſome means procured a ſpurious ſubſtitute, the firſt doſe of which occaſioned a vomiting from 9 o'clock in the evening to 2 the next morning.—The impoſter was obliged to quit the place, and application was made to me for the genuine ſolvent, which he took unremittingly, till the February following, during which time he had collected 2 ounces and 3 drachms of a whitiſh ſand, after repeated ablutions with warm water had diſſolved every thing ſaline or gummy which might be paſſed along with it in the urine. About this time he returned to town, when he communicated the particulars of his amendment; but as he ſtill felt a pain after having made water, and a titilation, or rather uneaſy ſenſation at the glans p—s, I perſuaded him to continue the ſolvent, under a certainty that the nucleus remained ſtill to be voided. About this period he unfortunately con-

tracted a L—v—— which obliged him to undergo a different regimen for 6 weeks, at the end of which time he was thrown back into his calculous complaint, with the ſerious addition of a diſcharge of a purulent matter in his water, which made me apprehenſive of an exulceration at the neck of the bladder, more eſpecially as he now complained for the firſt time that the ſolvent encreaſed the warmth of the urine and heat throughout the urethra, it was difficult to determine what courſe to take, as we were perſuaded the virus of the new diſorder was fully conquered, and terebinthinate medicines proved ſtrongly diuretic, without ſhewing any ſigns of healing the ulcer. The ſolvent was his ſheet anchor, ſo that there was no poſſibility of remitting it entirely. I therefore as a *dernier reſort*, gave him twice a day, a bolus of a ſcruple of ſperma cæti, and one grain of calomel, with 3 ſpoonfulls of the ſolvent every night, I had the ſatisfaction to obſerve

ſerve in ten days, that the quantity of mucus and pus diminiſhed every time of making water; and that it was leſs offenſive to the ſmell than it had been; I continued this courſe for three weeks longer, even till he complained of a ſoreneſs in the gums and till there was no appearance whatever of matter: he then took the ſolvent twice a day during the uſe of three large bottles, in the laſt of which, he paſſed five fragments of ſtone which compoſed a compleat nucleus: and he has never ſince taken the ſolvent regularly, but a few doſes at the diſtance of a fortnight or three weeks, which have effectually defended him from any appearance of gravel, &c.

I have been the more particular in the detail of this caſe by Mr. S.—'s deſire, he being aſſured in his own opinion of the two following facts, that drinking the ale in Staffordſhire brought on the ſtone for the ſecond time, and that the

calomel ſaved his life in the laſt inſtance, may it not be in this caſe as in old ulcers in the legs, and other parts of the body, that calomel diſpoſes as an alterative the eroſion to heal faſter, and with more certainty, even where there is no ſuſpicion of a venereal taint remaining? and may it not be fairly concluded, that the ſolvent does more than remove the diſorder when preſent ſince Mr. S— has remained well and free from ſabulous urine for eighteen months, without taking any of it, altho' his habit was naturally diſpoſed to form it all his life time before.

CASE

CASE X.

J. BENNETT, Eſq. of New Ormond ſtreet, conſulted me in a diſorder whoſe indications were of that ambiguous kind that he had at different times for 5 years been treated as under ſpaſmodic conſtrictions at the neck of the bladder; at others as having inflammation there, and laſtly, the cortex peruvianus was adminiſtered him in all ſhapes, as the complaint was obſerved to return periodically; none of theſe methods of treatment ſucceeding, he ſuggeſted of himſelf that it might be ſtone, as he felt the moſt excruciating torture in, and after making water; inſomuch that it would often throw him into convulſions on the floor or couch, from which he could not be removed till the pain ſubſided, during theſe fits, the tenſion of the whole abdomen

domen would be conſiderable, accompanied with violent ſickneſs, head-achs and languor, for which 60 or 80 drops of laudanum would be adminiſtered with but ſlight effect, and at ſome times none at all would be produced.

It was impoſſible at this time to pronounce his diſorder ſtone, for the contraction of the whole urethra was ſo great, as not to allow the introduction of the *ſound*, nay even bougies were with much difficulty paſſed therein; and as has been mentioned the fits returned periodically; the ſtricture prevented a further trial of bark; but I determined to join ſome antiſpaſmodics with the ſolvent, which I propoſed to give him for two reaſons, the firſt, becauſe his diſorder could not be ranked under either of the before mentioned claſſes, and therefore by reaſoning *à prioré*; I concluded it might be ſtone, the other reaſon was,

that

that whatever the diſorder might prove to be, the ſolvent could not hurt him.

I loſt no time therefore in giving the ſolvent; to each doſe of which; I added 3 grains of muſk, and a drachm of tincture of caſtor, in 20 days he was ſenſible of the fit being leſs ſtrong, the water leſs morbid, and red, and the tenſion of the lower belly conſiderably abated.—In this way he continued ſo far to mend, that in two months, he could walk with indifferent eaſe, and more than once called at my houſe, nevertheleſs there were no further ſigns of a diſſolution of ſtone than a fine ſediment in the urinal as light as flour.—I ventured now to give him the ſolvent without the antiſpaſmodics, and he continued the uſe of it inceſſantly for 6 months, before the completion of which time, he had indubitable proofs of the cauſe of all his ſufferings, for he had paſſed ſeveral intolerable rough fragments of ſtone, after which an impalpable

powder

powder succeeded to it, and he grew so perfectly well that he only took the remedy at distant periods.

This cure may be called so radical, that he has not for 4 or 5 years had any symptoms of it whatever.—Altho' he daily walks to the India house and back, at the age of 70 years and upwards.

CASE

CASE XI.

The two following caſes afford every reaſon to ſuppoſe that ſtones in children are leſs compact than in adults; from which it is as natural to conclude, that the more our diet (while the calculus is forming) approaches the ſimplicity of theirs in its quality, the leſs likely is it to acquire the denſity and hardneſs which is remarked in many.

MASTER THOMAS, ſon of Joſiah Thomas, Eſq; of Guinea Street, Briſtol, had been afflicted with the ſtone ſeven years, and at ſo early an age, that it was not conſidered as that diſorder, but treated at times as cholic, at others as ſpaſmodic: the complaint however as he grew, acquired additional ſtrength, 'till at laſt he was unable to walk for the pain, and a very conſiderable

rable quantity of fœtid pus was evacuated with his urine, which plainly indicated an ulcer in the bladder; he was now ſounded, and a ſtone of a conſiderable ſize diſcovered; upon which a conſultation of the moſt eminent phyſicians in London was had, upon the expediency of his being cut, and which might have taken place but for his extreme weakneſs and emaciated condition.—Sir Noah Thomas therefore adviſed the trial of the ſolvent, and he was accordingly carried back into the country to make trial of it, but without any great hope of advantage. He had left ſchool ſome time before, on account of the violence of the diſorder, and in the laſt year of his being there he had not from that cauſe, made any progreſs in his learning.—By the time he had taken the ſolvent a month, a prodigious quantity of purulent matter and mucus paſſed, and in a month more ſome earthy ſubſtance was plainly ſeen in every making

of

of water, and the urine was become almoſt clear of that thick jelly-like matter which it had before abounded with: his pain now leſſened greatly, inſomuch that he could walk about, and he began to recover his fleſh ſurpriſingly, and in two months more, near a quarter of a pint of ſand was collected from the urinal, after repeatedly waſhing the ſediment with warm water: at the end of about ſix months he appeared to be totally cured of the ſtone, and to have recovered his ſtrength and fleſh, ſo that he was again put to ſchool, with the caution of continuing to give him the medicine once a day for a time longer: in three months more it was quite laid aſide, and this laſt autumn, in my way from Bath, I called to ſee him at Keynſham Academy, when, inſtead of the moſt emaciated puny youth, I found him in the higheſt appearance of good health, and learned, that he advanced in his education with the greateſt ſolicitude and ſucceſs.

CASE

CASE XII.

THO. GALE, Esq; near the four-mile stone at Hammersmith, called upon me in November last, and acquainted me, he had a son (a child, about five years old) who had been ill for a considerable time, before he was suspected to have the stone; nor was it 'till he was sounded, by Mr. Chasy, of Berners Street, that they were convinced of the reality of it. He had at times, suffered the most excruciating torture, in making water, which, by fits, would be every half hour, in small quantities, and he would throw himself into all manner of postures and cry out in the most affecting manner.——Upon this representation, I advised him to lose no time in putting him under a course of the solvent, and he began with the dose proportioned to his age.—In a month, or thereabouts, I went to see him, when I learnt that the fit had returned at the

usual

uſual period, but with leſs violence.—He had for a conſiderable time had a weakneſs at the neck of the bladder, which occaſioned his water to run from him inſenſibly, this, no doubt was brought on by the preſſure of the ſtone on the neck of the bladder, and which would as probably leave him, upon the removal of the diſeaſe itſelf.——The ſecond time I ſaw him, I found his fits of ſtone but of trifling concern, and he could make water without much pain; by the time he had taken the ſolvent four months, there was not the leaſt reaſon to apprehend any remains of the diſorder, for his urine (which had had a conſiderable quantity of mucus and ſand in it during the uſe of the remedy,) now became clear and in all reſpects healthy in appearance; it therefore remained only to ſtrengthen the ſphincter of the bladder, for which I recommended him to leave off the ſolvent, and uſe the cold bath.

CASE XIII.

THE RIGHT HON. LADY L********* had ſuffered very conſiderably with the ſtone for ſix years, in which period ſhe had, at different times, been under the care of three of the moſt eminent phyſicians, and taken every medicine uſually preſcribed in that complaint, which not only gave her no relief, but proved hurtful to her ſtomach.—Her ladyſhip ſays that ſhe had not taken the ſolvent a month, before ſhe was eaſier, and her ſtomach ſtrengthened; and that in the courſe of time it had all the good effects I had reaſon to expect, the particulars of which, cannot, from conſiderations of delicacy, be mentioned. Her ladyſhip has taken it for five years and upwards, occaſionally, as a preſervative, and that inſtead of its being found injurious to her, ſhe has often declared, that

that she not only owes her ease to it, but her life.—Her ladyship is pleased to add, that if any person is desirous of particular information about her case, I have liberty to mention her name at length, and that she will take the trouble of relating her progress with the medicine.

CASE XIV.

OF THE HONOURABLE MR. CHARLES HAMILTON.

In his firſt letter, December 1777, he remarks, that he ſuſpected a ſtone had formed, or was forming; that he had taken ſoap pills twice a day for a year, and then blackberry conſerve, without removing the complaint, for that in a little time he diſcovered, upon taking a long walk, his urine to be bloody, on which account he began again with the ſoap pills, but they were ſo forcing to his urine, that he was obliged to leave them off; ſoon after this, the tendency to make water grew frequent, with ſtrangury and uneaſineſs (almoſt a pain he ſaid) at the *g—s p—s*, and particularly after making water, and which he obſerved from reading my diſquiſition, was occaſioned by

by the neck of the empty bladder touching a ſtone :—he further ſays that, having been accuſtomed ſome time before this, to void numerous bits of ſand or gravel, and none having lately come away, he apprehends they are in a ſtate of *aggregation* in forming one large one. He adds, that tho' there is no aſſurance of this being the caſe, yet as he is informed the ſolvent will do no injury, he is determined to take it, and wiſhes to know how he might be certain of having it genuine, as he has heard of a ſpurious medicine diſpenſed by people in the country :—his next letter to me was dated the 12th of April, 1778, in which he ſays,

"SIR,

YOUR ſolvent has had a very extraordinary effect upon me, and ſeems to have more apparently ſhivered the calculus to pieces, than I find deſcribed in either the firſt or fifth edition of the diſquiſition.

Jan. 10, 1778. I began to take the ſolvent, two large tea-ſpoonfulls at a time, night and morning, and finiſhed the bottle the middle of February, during which time I voided much ſandy ſediment and mucus in the urine.

March 6. I voided a large piece of calculus, in ſhape like a quarter of an almond at the pointed end; that very night I began the ſecond bottle, taking two large tea-ſpoonfulls night and morning as before.

March 8. I voided another piece of the ſame calculus, twice as big as the former, inſomuch that it ſtopped in the urethra 'till I made a more than ordinary effort, which forced it out, with ſome blood, as the pointed parts had juſt ſcratched the urethra near the glans.

March 9. I began to take the full doſe, three large tea-ſpoonfulls night and morning.

March

March 12. I voided another piece of the ſame calculus, leſs than the laſt, but larger than the firſt.

April 2. I voided a ſmall piece of the ſame calculus.

April 6. I voided a very ſmall piece of the ſame calculus, and the ſame day I finiſhed the ſecond bottle.

The above eight pieces, manifeſtly of the ſame calculus, look to me as if the points of all of them terminated in the center of the nucleus, if that conjecture is right, one may form ſome judgment of the preſent diameter of the ſtone, and in what proportion it has diminiſhed. I am ſenſible I have voided other pieces at the water-cloſet, for I felt no pain upon voiding any of theſe, and which is very extraordinary, ever ſince I have begun voiding calculi, I have never felt the leaſt pain any where;

except

except an uneaſy ſenſation after making water, which I had juſt before I took the ſolvent, and which has quite left me from the firſt taking of it.

There is ſtill ſome ſediment in the urine, but very much diminiſhed; I have defired Mr. Eddie, who ſent me the laſt, to ſend me two more bottles, which I propoſe going on with immediately; I will never be without ſome in the houſe, and ſhall, as I ought, ſtrongly recommend it. I ſuppoſe I ſhould take it as long as any ſediment ſhall be found in the urine, but ſhould be glad to know what rule I am to obſerve in leaving it off, ſuppoſing my cure compleated.

I am, ſir,

your much obliged

humble ſervant,

CHARLES HAMILTON."

EXTRACT

EXTRACT OF ANOTHER LETTER.

July 12, 1778.

" SIR,

THOUGH my cure is not yet compleated, I would not defer any longer acquainting you with the wonderful effect your ſolvent has had upon me. I have not yet taken half the laſt bottles you ſent to me, for as it has a purgative quality with me, I have been obliged to take it in ſmaller doſes than uſual.—I am however, in hopes that, by the time I have finiſhed the ſolvent I have, I ſhall have brought away all the calculi. I imagine what I have before taken in large quantities (for I took it at firſt, at the rate of eight, and ſometimes twelve ſpoonfulls in the twenty-four hours: I imagine I ſay, that it has ſo impregnated the calculus that it now eaſily diſſolves; for it is amazing what I have voided, ſince the nineteenth of

May,

May, twenty large pieces of calculus, beſides many midling ſized ones, and a quantity of very ſmall pieces like egg-ſhells, as you deſcribe, and many pieces of the nucleus, and a vaſt deal even of fine duſt muſt have paſſed unobſerved, at the water-cloſet and elſewhere, and which is very extraordinary, no pain now, for the pain I had after urining has left me ſince I have taken the ſolvent.—It is now ſix months ſince I began to take your ſolvent; in two months time I began to void pieces of calculus, and had yeſterday the curioſity to weigh all I have preſerved, and they weigh exactly one drachm and a quarter; if I could get a parcel of them joined together where they tally (which I will endeavour) I could gueſs at the ſize of the ſtone, or if there be more than one; which I ſuſpect.

If any friend of yours, or any medical gentlemen are deſirous of ſeeing them,

them, I ſhall be very willing to ſhew them, and vouch to them what I have written; I think it is but juſtice to you. I believe my experience in your medicine has removed all the prejudice the phyſical people have entertained againſt it, as the lady you have before heard of is well; I met her at an aſſembly, not long ago: I have told Dr. C——, her phyſician, of the good effects of it on me, at which he ſeemed much ſurprized.

I am ſir, &c.

CHARLES HAMILTON."

ANOTHER

ANOTHER LETTER FROM THE SAME GENTLEMAN.

Creſcent, Bath, Sept. 20, 1778.

"SIR,

YOUR ſolvent continues to do wonders for me, for though the ſtate of my bowels obliged me to take it very ſparingly, yet, notwithſtanding, I have voided a much greater quantity of calculus and nucleus than before; from July 10th, to Auguſt 10th, I voided forty-eight grains, from Auguſt 10th, to September 10th, thirty-nine grains; the whole quantity voided (that I could ſave) is (from the 6th of March, when the ſolvent firſt began to operate) above half an ounce.

As ſoon as I found my bowels grew ſtronger, I increaſed the doſe *gradually*, and from the 9th of this month have taken the full quantity, night and morning:

ing: I am now apt to think it was ſome particular weakneſs in my bowels made it diſagree, for now, beſides finding no inconvenience from the encreaſed quantity, I have taken the firſt ſort you ſent me, ſince the 16th inſt. which agrees as well as the other; I muſt deſire you to ſend me two more bottles. I ſhould be glad to know how long it will keep perfectly good; I have very little left now, as I gave almoſt all the bottle I am now drinking, away, to poor people, who could not afford to buy it, which I ſhall continue to do as long as I live, for your ſake as well as that of my poor fellow ſufferers. I have talked over the ſolvent with ſeveral medical gentlemen, as well as many others, and have ſurprized and converted many; Dr. Moiſey, my phyſician, after I had taken it ſome months unknown to him, upon my telling and ſhewing him the effect, adviſed me by all means to continue it, but with caution as to my bowels, and that he

ſhould

ſhould recommend it himſelf to his patients in ſimilar ſituations; yeſterday I ſhewed it to a very ingenious man, Mr. Bliſs, your neighbour, in Oxford-Street, an old acquaintance of mine, who was much ſurprized.

I apprehend by the different ſized concaves of the pieces of calculus, and convexes of the nucleus, that mine is not all one very large ſtone, but ſeveral middle ſized ones, and that the ſolvent is acting upon them all at once. As the quantity voided decreaſes, I ſuppoſe I ſhall come to the bottom of the quarry at laſt, but propoſe taking it 'till I have been three weeks without voiding either calculus or ſediment, then I ſuppoſe I may reckon my cure compleated.

I am, ſir,

your very humble ſervant,

CHARLES HAMILTON."

Bath,

Bath, Dec. 13, 1778.

"SIR,

I HAVE now taken five bottles in all, the reſt I have given away with ſucceſs; it continues to do wonders with me; I have voided above five drachms in all, and continue voiding, but in much leſs quantities; only twenty-four grains laſt month: ſome months I have voided above ſixty grains. I take two tea-ſpoonfulls night and morning, without purging for ſome months, and propoſe taking 'till I have ceaſed voiding any thing for above a fortnight.

I have mentioned, to many of the faculty and others, and ſhewn them what I have voided, and without any inconvenience, which aſtoniſhes them all; and I believe my caſe will operate as ſtrongly in favour of the ſolvent, as any you have publiſhed.

I ſhewed

I ſhewed them to the Duke of Northumberland, to his great amazement, but he ſays it wo'nt do for him, as he has reaſon to believe one large ſtone almoſt fills one of his kidneys, and if it was broke to pieces, like mine, it might kill him in endeavouring to paſs the ureters.

I believe mine is not one, but ſeveral largeiſh ſtones, by the ſhape of the pieces, both of calculus and nucleus, which I keep ſeparate, and which look as if they had been broke to pieces with a hammer.

I ſhould be glad to know what is the largeſt quantity any body has taken to effect a cure, and am, ſir,

your humble ſervant,

CHARLES HAMILTON."

Bath,

Bath, Jan. 19, 1779.

"SIR,

I VOID great quantities ſtill, chiefly nucleus, ſo I hope it is drawing to a concluſion; laſt month I voided a whole drachm: I think it impoſſible that what diſſolves the ſtone, can permit any new ones to generate whilſt I am taking it, if ſo, unleſs I have a quarry in me, it cannot laſt long: I continue perfectly well in other reſpects, except a dull obtuſe gentle pain about the loins, which has come lately; perhaps there is a ſtone in the kidney.

I am, ſir,

your humble ſervant,

CHARLES HAMILTON."

Bath, May 11, 1779.

"SIR,

I THINK I am almoſt cured of the ſtone in the bladder; was in hopes to have wrote you word long ago that I was quite ſo, but my bowels have lately, contrary to their uſual cuſtom been in ſo lax a ſtate, I have been forced to deſiſt from taking the ſolvent; I have taken but two tea-ſpoonfulls in all, ſince the firſt of April; it always purges now, ſo it did about a year ago, yet ſince that time I have taken the full doſe for a continuance without inconvenience, hope I ſhall again.

Though I have diſuſed it ſo long, I feel no uneaſineſs at the neck of the bladder after urining; void very few pieces, chiefly ſmall ſhells and crumbs, and the quantity decreaſes ſo much, I ſuppoſe the bladder is pretty nearly cleared: laſt month I voided but eleven grains;

grains; the month before, thirteen; and the month before that, twenty; before which I generally uſed to void from forty to ſixty grains per month: all the pieces and crumbs I have preſerved ſince I began the ſolvent, weigh one ounce wanting ſeven grains; much muſt have eſcaped my obſervation.

I am not without apprehenſion of ſomething being in the left kidney, from an uneaſineſs I feel there upon quick motion, and even turning in bed, or lying long on that ſide, ſo think it prudent to abſtain from going in a carriage; and my ſcheme is, if you don't diſapprove, whenever my bowels are ſtrong, to take one tea-ſpoonfull of ſolvent every day, as long as any the leaſt particle of ſtone is voided.

Lord Stormont, to whom I am very nearly related, was here lately; I was telling him what wonders your ſolvent

had performed with me, he told me he knew you well, and I was very glad to have an opportunity of proving to him the efficacy of your medicine, as I ſhall never loſe any opportunity, where I think it may be of ſervice to you, to give it its due praiſes;

I am, ſir,

your humble ſervant,

CHARLES HAMILTON."

Bath,

Bath, March 16, 1783.

"SIR,

I SHOULD have ſent you earlier a further account of the great ſucceſs of your medicine with me, but waited 'till my ſtock was out, ſo now deſire you to ſend me two bottles more as uſual, for which I ſhall deſire Mr. Eddie to pay you, next time I write to him.

As I am quite free from pain or inconvenience of any ſort, though I continue voiding ſtone almoſt daily, at the rate of from twenty to forty grains a month, (for I keep an exact account) I have taken for the laſt year, not above ſeven or eight tea-ſpoonfulls a month; and have now in my poſſeſſion above four ounces of calculus which I have voided, and, in all probability, above an ounce more muſt have eſcaped me. I have not, for this year or more, voided

any pieces that ſeem broken or ſplit, like thoſe I formerly deſcribed to you; I hope all theſe large ones are gone; I now void ſome very large, but entire and rough, for I imagine the ſmall quantity of ſolvent I continue taking, prevents their coming to their former ſize, and I hope, by taking it in that manner all my life, to keep the diſorder under.

Though I cannot call mine a radical cure, I think my caſe as extraordinary as any you have quoted, and you are at liberty to make what uſe you think proper of it, but I apprehend my habit of body generates ſtone ſo faſt, that nothing can prevent its exiſtence in me, only a growth to a troubleſome bulk.

I am ſir,

your humble ſervant,

CHARLES HAMILTON."

BATH, *March* 16*th*, 1783.

REMARKS ON THE BEFORE-MENTIONED CASE.

THIS caſe of Mr. Hamilton's muſt be allowed the moſt ſingular of any I have recited, ſince the ſolvent has all along reduced the ſtone in ſo deſirable a manner, and enabled him to void it without pain, or any alarming ſymptom whatever: in September laſt I called upon Mr. Hamilton, in my way thro' Bath, and was greatly ſurprized to ſee him in ſuch perfect health and ſpirits, and to obſerve his activity, he having done me the honour to walk with me over all his new made lawn and gardens, in which I cannot (though foreign to the ſubject) help remarking, that I never ſaw ſuch perfection in building and laying out ground, in the diſplay of which, no ſigns appeared of his diſorder having either impaired his diſcernment, or hindered his taſte from manifeſting itſelf to the utmoſt, by an application of judgment

judgment, which his time of life makes one reflect on with equal ſurprize and pleaſure.

Though any further teſtimony of the ſolvent's innocency may not be neceſſary, yet an additional proof of its not aggravating gouty or bilious complaints, will not be thought ſuperfluous; ſince theſe complaints (particularly the latter) have furniſhed ſome phyſical people with pretenſions for ſuſpending the uſe of the ſolvent, than which, nothing can be more wrong, for it is an undoubted fact, that it is beneficial in gouty and bilious caſes, as being ſtomachic, and it may be added, that bile is often ſymptomatic of the ſtone, ſo that the ſolvent is abſolutely the only medicine likely to relieve in that ſituation of the diſeaſe—but leaſt it might be ſuſpected that partiality may in ſome degree incline me to conſider a medicine as a *panacea* becauſe it has done wonders

in

in one diſorder; I ſhall add, with permiſſion of the writer of it, the confirmation of theſe facts, by a letter I received from J. Call, Eſq; member of parliament for Callington, and in whom it is only ſuſpected the nucleus of the ſtone remains to be diſſolved.

Queen-Square, 3d April, 1785.

"SIR,

HAVING taken your ſolvent at intervals for ſome time, I think it neceſſary to acquaint you of its effects on the object for which I took it, as alſo on my conſtitution in general.

In June, 1781, having rode on horſeback pretty ſmartly, I made a conſiderable quantity of bloody water, without having previouſly felt, or feeling at the time, any pain or extraordinary ſenſation.—Not knowing from whence, or

from

from what cauſe it proceeded, I dined in company, and making no more ſuch water, I paid no regard to what had happened, but returned to London from Portſmouth, where I then was, and afterwards went into Cornwall—whence I rode again only five miles, and then made bloody water as before——this alarmed me—I conſulted a ſurgeon and phyſician, who pronounced it the gravel, and preſcribed, ſoap pills, lime-water, and ſome other medicines, which I took at times during the autumn of 1781, but on riding or walking much, always made bloody water, though without any pain or conſiderable ſenſation.—In the beginning of 1782, I came to London, having at times experienced ſevere irritations in the bladder, and frequent urgings to make water; and being very unable to bear the motion of the carriage on the firſt part of the road—I was ſoon after ſounded by Mr. Young, ſurgeon, who found my complaint to be

a ſtone

a ſtone in the bladder, which I could feel with the ſound myſelf.—I had before, taken a bottle or two of your ſolvent, but now reſolved to take it regularly, and to obſerve the regimen preſcribed pretty exactly—neither eating meat, nor drinking wine, except at dinner, and never to any exceſs—but having been accuſtomed to drink as far as a pint, I have ſeldom taken leſs at and after dinner than five or ſix glaſſes—my ſupper, if any, has always been according to your regimen.

From the ſpring of 1782, I took the ſolvent pretty conſtantly 'till the ſummer of 1783, but only at intervals, during the year 1784. I began to bear travelling better towards the end of 1783, but I could not ride an horſe, except in a walk.—In 1784, the travelling up and down to Cornwall in a carriage became very eaſy, and latterly the motion of a carriage over the London

pavement

pavement is not troublesome.—I also last autumn, rode out with the harriers, and often trotted, without making any bloody water, (but did not venture to gallop) and I can walk many miles in a day without the uneasy sensations I formerly felt.—In short, though I am at times sensible that there is a nucleus still in the bladder, yet I trust it is not large, as I feel no sensation in jumping down, nor any frequent urgings to make water; on the contrary, I often go four or five hours without evacuation, and am seldom disturbed in the night. I mean to go on regularly again with the solvent this spring, and hope to obtain a total relief.

With respect to the effect of the solvent on the constitution in general, I think I am clear, as to myself, that it has been very beneficial, for though when I began to take it, or before I felt any sensations of the stone, I was at

times,

times, of a very bilious habit, had frequent head achs, and ſtrong ſymptoms of the gout (which my father fell a martyr to) yet I do not remember, for twenty years paſt, to have been ſo free from all the above complaints, as I have been theſe three or four years paſt, nor to have enjoyed a better ſtate of health, except with regard to the complaint for which I took the ſolvent.—I have enjoyed a conſtant good appetite, and more particularly ſo the days I take the ſolvent.—My body has always been open, as it always was, conſtitutionally; and I never have had the leaſt nauſea at the ſtomach, or diſinclination to any kind of food.—So far I can ſpeak with certainty as to what I have experienced, and I mean to perſevere in hopes the effect will be as certain in relieving me wholly from a complaint, which, though very tolerable at preſent, is not agreeable in proſpective.

I am, ſir, &c.

JOHN CALL."

CASE

CASE XVI.

THE CASE OF JOSEPH BELL, ESQ. SURGEON, AT WYCOMBE, BUCKS. AS DRAWN UP BY HIMSELF, AND ENCLOSED IN THE FOLLOWING LETTER.

"DEAR SIR,

INCLOSED I ſend you a ſimple narrative of facts, as they occur to my recollection, you will be ſo obliging, if you think it may be of uſe to the world, to put it in proper form; and I aſſure you, that I ſhall at all times, be ready to give the moſt ample ſatisfaction to every one who may be induced to apply to me on the ſubject, as I feel it a duty I owe the public, ſo to do. The obligation I am under to you for your attention to me during the courſe

courſe of the ſolvent's trial, will never be effaced from my memory.—The relief I have experienced will always incline me to keep a bottle or two in the houſe, for which reaſon I beg the favour of you to ſend me two before you go to Paris—'till your return therefrom, permit me to ſubſcribe myſelf

your obliged and devoted

humble ſervant,

JOSEPH BELL."

"The 6th of December, 1783, on my road to Kingſton upon Thames, I was ſeized with a ſevere fit of pain in my left kidney; I had been for four years back too well and too repeatedly acquainted with the kind of pain, to miſtake that which I then ſuffered; however as I had only five or ſix miles to ride I purſued my journey; at the end of which, on getting off my horſe, and calling for a cham-

chamber pot I paſſed a very conſiderable quantity of bloody water, my pain by this time was ſo conſiderably increaſed, that I was under the neceſſity though at an inn, of having recourſe to the warm bath and laudanum, of which I took between eighty and a hundred drops.—The relief I experienced was very little in proportion to the quantity of opium I took, and my night was a night of torture. By the perſuaſion of a friend who was with me, I the next day returned gently home, in a chaiſe.

Having taken the ſolvent for a month previous to this fit, my friends and Mr. Roſe a very eminent ſurgeon of this town, adviſed me to ſend for you, the ſtate in which you found me I need not deſcribe, ſuffice it to ſay, that from the time of my being taken ill, to the evening on which I apprehend the ſtone paſſed from the kidney into the bladder (being a ſpace of near three weeks) the

pain

pain I underwent is beyond all poſſibility of deſcription. Dr. Bates, an eminent phyſician in this neighbourhood, and Dr. Parſons, profeſſor of anatomy, in Oxford, were likewiſe called in to my aſſiſtance, particularly as you were at ſuch a diſtance from me.—The methods uſed during the fits of pain, you are perfectly acquainted with, I ſhall therefore content myſelf with informing you, that as ſoon as the ſtone had paſſed, I again by the advice of thoſe attending me, had recourſe to the ſolvent, and from perſiſting ſtrenuouſly in the uſe of it for twelve months, I have the greateſt reaſon to flatter myſelf, that it has rendered me every benefit I could poſſibly hope or expect, without feeling any one ill effect from perſiſting ſo long in its uſe. For the firſt two or three months, during the taking the ſolvent, I paſſed a conſiderable quantity of large rough gravel, attended at times with pain, when, for three or four months more, I

paſſed a pretty large quantity of very fine ſand; ſince which time, I have hardly experienced a twinge, or paſſed a particle, at leaſt in compariſon to what I had ſuffered, or what I had paſſed before, and am now, thank God, pretty well able to go through the fatigues of my profeſſion.

REMARKS ON THE ABOVE CASE.

It remains only for me to add, that upon being deſired, by expreſs, to attend Mr. Bell, I got immediately into a chaiſe, and reached his houſe about two o'clock the next morning, when I found him in a high fever, in the moſt excruciating pain, and at times delirious, his vomitings I learned, had been violent, and his urine, I found, was bloody to the higheſt degree.—I immediately ordered copious bleeding, but was informed, attempts had been fruitleſſly made with the lancet, and as I apprehended his life in ſome danger, I determined to renew

the attempt myſelf, and was ſo fortunate as to ſucceed, by which I drew off 16 or 20 ounces of blood. His fever began now to ſubſide, and he grew ſenſible, ſo as to deſcribe his feelings, balſamics and anodynes, were alternately given him, and I had the ſatisfaction to leave him in a fair way of recovery.—The piece of ſtone ſoon after paſſed, and he took the ſolvent without interruption 'till hopes were entertained that there remained nothing to be feared. It may be proper to add, that Mr. Bell remarks that the ſtone has all the evident ſigns of being operated upon ſtrongly by the ſolvent, by reaſon of its ſpecifical lightneſs for that a calculus of the ſame dimenſions and figure not operated upon by the ſolvent weighs nearly three times as much, viz. 25 grains, whereas his own weighs but nine grains.

It may be obſerved that the ages of the patients are not given as a circumſtance

in the detail, nor is it a material consideration in the cure of the ſtone; for after a perſon has attained to maturity, the ſtate of the fluids cannot be very different whether of 25 or 65. Several of the before recited caſes were of perſons in an age ſtill further advanced, ſo that no unfavourable obſtacle threatens the ſolvent's operation on that account; and it may be fairly concluded that nothing can exceed (as a medicine) the benignity and ſalubrity of its quality, ſince theſe patients are all ſtill living altho' 'tis ten years ſince ſome begun the uſe of the ſolvent; which they continue at intervals to this day, as a preventative remedy, with this extraordinary remark on it, (viz) that it operates as a ſtomachic and ſtrengthener of the viſcera, and therefore account for its keeping back in a meaſure thoſe fits of gout, which they may have been before accuſtomed to be attacked with.

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The ſucceſs and importance of this diſcovery to the world being now confirmed beyond the power of infidelity, or prepoſſeſſion, it will be unneceſſary to addreſs myſelf either to the ſceptical or prejudiced reader: but it may be proper to ſay ſomething to thoſe who may (while they admit its utility and benefit) argue, that its uſefulneſs is but partially diſpenſed, whilſt its ſecret is retained to the emolument of the diſcoverer: inſiſting that all improvements or diſcoveries in medicine, ſhould be at once revealed for the univerſal and equal benefit of mankind. I ſhould be ſorry if I was inſenſible of the philanthropy of this remark, but at the ſame time I cannot think it incumbent on me fully to adopt thoſe ſentiments, without the leaſt regard to my own ſituation. I ſhould be aſhamed of myſelf if the poſſeſſing an arcanum was capable of exciting any the leaſt tincture of vanity in me, and ſtill more ſo if I could be mercenary

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enough to make that use of it for enriching myself, which avarice and opportunity might enable me to do; disclaiming therefore the illiberality of such a conduct, I hope for the candour and indulgence of the world, as long as I continue to make no other use of the discovery than I have hitherto done, and which I have the pleasure to find has secured to me the approbation of the public, and the esteem and friendship of many of the most distinguished of my profession.

And now having said so much in my defence of not making a disclosure of this new remedy, I cannot in justice to my feelings, forbear mentioning how far I have endeavoured to do away the imputation of selfishness or want of public regard. This vindication drives me necessarily into the most unpleasant task, which can be assigned to me, viz. to egotize, but as self-commendation is not

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the motive, but ſelf-juſtification, I rely on my readers indulgence, and for which I ſhall adopt all poſſible brevity. About ſeven years ago, when the ſucceſs of this medicine rendered it an object of particular attention, I gave up my ſurgical practice, in which I had been engaged nearly as many, in order to attend better to its effects and to improve its compoſition ſhould it admit of it, ſo as to render it as ſafe in the hands of a patient at a diſtance, as under mine own eye; ſoon after this, concerns of a military nature, called me away, ſo that my patients ſought my advice with ſome uncertainty and trouble, and it was then that a right honorable friend adviſed me to open a correſpondence with Lord N——, that he might give me a recompence for the ſecret of the ſolvent, my terms were aſked, and my anſwer was a place for life of the value of my profits at that time, I added alſo, that I was not averſe to the duty of ſuch a place as my

my capacity was competent to: in this I was counſelled by my noble friend, who enforced the reaſonableneſs of my demand by ſaying, that it could not be improper to exchange a place, the ſalary of which is paid by the public, for an equivalent in which the community will be benefitted. Whatever might be the cauſe of this negociation falling to the ground I know not, but I heard no more from his lordſhip, and no propoſition has been made to any ſucceeding miniſter, although I ſhall never be averſe to its renewal, if it ſhould be thought intereſting enough to deſerve it, being ready to declare that I ſhall feel more gratified even with a ſmaller emolument, than in deriving a large one by the poſſeſſion of a ſecret, which muſt ever render me an object of envy, not to ſay more, of ſome of the profeſſion.

FINIS.